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NEW YORK MEDICAL JOURNAL.

MARCH, 1868.

EDITED BY

WM. A. HAMMOND, M.D., and E. S. DUNSTER, M.D.

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NEW YORK

MEDICAL JOURNAL:

A MONTHLY RECORD OF

MEDICINE AND THE COLLATERAL SCIENCES.

VOL. VI.] MARCH, 1868. [No. VI.

Original Communications.

ART. I.—*Amputation at the Knee Joint.* By THOMAS M. MARKOE, M.D., Surgeon to the New York and Bellevue Hospitals; Adjunct Professor of Surgery in the College of Physicians and Surgeons.

IN the New York Journal of Medicine for January, 1856, I published an account of ten cases in which amputation at the knee joint had been performed in the New York Hospital, together with eight other cases that had been operated on, in various parts of the country, by American surgeons. These, collated with the recorded experience of foreign surgeons, presented a total of forty-six cases, and seemed to indicate, if not

to prove, that amputation at the knee joint was, in many cases, to be preferred to amputation higher up; a preference which was based upon two principal features, namely, first, the superiority of the stump left by section through the joint; and, second, by the greater safety and success of the amputation at this point. My attention has, since the date of that paper, been constantly directed toward this subject; and as our experience has accumulated new reasons for confidence in the safety of the operation, it has also given us the opportunity of observing the performance of the stumps during several additional years of service; and has, I think, fully vindicated the original appreciation of the operation.

Compared with amputation through the thigh—and, of course, it is only with this operation that it should ever be placed in competition—I think that several important facts have been, by our experience, fully and satisfactorily demonstrated:

1st. I think it is no longer doubtful that the ancient prejudice against the operation, and the objections to it, on the ground of the danger of opening so large a joint as the knee, are unfounded, at least in the degree to which they are practically important. It will be seen, by glancing over the cases, that in no instance has the remaining portion of the synovial membrane assumed any formidable inflammation; and though, in several instances, inflammation and suppuration have indeed taken place, they have presented no features of peculiar severity or danger; nothing, in fact, essentially different from similar abscesses, which are liable to occur in all

amputations wherever made; and have in no case proved more intractable, or more troublesome, than in stumps made in the continuity of the limbs. I am indeed disposed to believe, reasoning *à priori*, that, inasmuch as the muscular interspaces of the thigh are not opened at all, and those of the leg cut so as to leave mere shallow culs de sac, there should not be the same liability to the spread of inflammation up the thigh, nor so great a tendency to suppuration burrowing upward, when that inflammation does occur. And, furthermore, the cases presented seem to prove that the cartilaginous surface of the femur presents no troublesome complications in consequence of its exposure. In most of the cases, the flaps once covering the cartilage from sight, we have heard no more from it; and in those instances where, from sloughing or scantiness, the flaps have not completely covered its surface, it has either gradually taken on granulative action, and blended with the surrounding tissues, or if exfoliation of any part of the cartilage has taken place, it has been a limited action, rapidly completed, without disturbance of the healing processes going on around it, and leaving a healthy granulating surface, which has healed as well, and almost as quickly, as the other parts of the stump.

2d. There seems good reason to believe that the shock to the system, and the demand upon its reparative power, is less in the amputation at the knee joint than in amputation higher up. The mere fact of the section being further from the trunk is generally accepted by surgeons as diminishing the mortality in amputations; but over and above this, the knee joint section

is essentially a simpler one, as far as tissues are concerned, than section through the muscular bellies of the thigh. In fact, with the exception of the heads of the gastrocnemius, and the insignificant popliteus muscles, there is nothing cut, in the knee joint operation, but skin and subcutaneous areolar tissue, and a few small tendons of the femoral muscles. All the central portion of the wound consists of the uninjured articular end of the femur, which, as far as vital actions go, seems to play a part entirely passive and quiescent, showing, as above stated, no disposition toward any unfavorable or embarrassing accidents, while, at the same time, it takes a prompt and kindly part in the necessary healing processes.

3d. The condition of the stump, during the progress of the cure, is more favorable and less distressing to the patient than one made through the thigh; and mainly for two reasons. First, the muscles moving the thigh bone being all uninjured, the stump can be handled and moved by the patient himself with extraordinary facility and comfort. It is well known by practical surgeons, that the first dressing of a thigh stump is one of the most painful manipulations of surgery; and a large share of the pain arises from the raising of the limb and holding it while the dressings are removed and reapplied; a process which, under even the most skillful and rapid hands, requires considerable time for its proper accomplishment. This source of suffering scarcely exists in the knee joint stump; and nothing surprised me more than to see how easily these patients could raise and hold out their stumps, for the first dress-

ings, with little or no assistance, and apparently with very little pain or distress. In some instances, the patient has asked as a favor that he should be allowed to raise the limb himself, as he found he could do it so much more comfortably than it could be done for him. This feature of the knee joint stump recommends it as a good amputation in military surgery. I have been able to get no experience on this point, but I am convinced that such a stump would render transportation of the wounded man much more tolerable, and much less liable to serious injury, than when it is composed of muscles cut across the middle of their bellies. Second, and for the same reasons, no retraction of muscles can take place, by which the coverings of the end of the bone can be drawn upward, and the sawed end of the bone left exposed ; so that if the flaps have been properly cut in the first place, such exposure can only occur from sloughing, or from the most unpardonable carelessness in the dressings.

4th. The bone being unwounded in the knee joint amputation, is not subject to the troublesome and dangerous accidents which sometimes follow the application of the saw, and the exposure of the medullary membrane to the air, and to the foul secretions of the suppurating surface. Of these accidents we have, first, the death of a ring of bone at the point of saw cut, which, though trifling in itself, interferes with the prompt healing of the wound, and often necessitates a painful and perhaps repeated manipulation with the forceps for its removal. More extensive, more tedious, and in every way more serious than this, we have the necrosis

of the inner tube of the shaft, forming the tubular sequestrum, which is often for months the source of so much distress and danger, and which requires for its removal an operation which is, in some cases, only less serious than a reamputation. And still worse than either, we have the unhealthy and pyemic inflammations of the cancellous and medullary tissues of the bone, which produce the varied phenomena, and the grave and often fatal symptoms, which characterize the formidable disease known as osteo-myelitis. All these depend directly upon the mechanical violence done to the bone by the saw, and the subsequent exposure of the medullary membrane; and it is not too much to say that these serious dangers belong exclusively to amputations in the continuity, and do not occur in amputations through the joints, where no injury is inflicted upon the bone.

These considerations, fortified by the observation of a considerable number of cases, have led me to the conviction that the knee joint amputation is in itself a better and safer one for the patient than amputation of the thigh; a view which statistics, now tolerably extensive, fairly confirm. But if this intrinsic superiority of the operation at the knee be judged "not proven;" if it be insisted on that it is no better and no safer, it has, in the excellence of the stump which it leaves, a claim for preference, which I think nothing should defeat but the ascertained fact of its being more dangerous and more fatal than amputation through the thigh. No one who has seen such a stump, and observed its performances, can have a moment's doubt as to its very great

superiority over any stump which can be made in an amputation higher up the limb. I first saw one of these stumps in the person of a man in the New York Hospital, who had been amputated years before in Florida, at the knee joint. By the broad end of the femur, which was covered with simple integument, free from tenderness or excoriation, this man could bear his whole weight directly on a pad, in an ordinary wooden peg leg, and could with ease walk ten miles a day. The immense practical importance of this fact can only be appreciated by those who have paid some attention to the mode of operation of the different mechanical arrangements for supplying lost limbs. In all amputations through the shaft of the femur, it is perfectly well understood, that no pressure from the apparatus can be borne on the end of the stump, and that therefore, no bearing can be had on this end, which can in any degree contribute to supporting the weight of the body. This is equally true in amputations of the leg in its continuity; and, in all these cases, the problem to be solved is, so to distribute the pressure, that single points shall not suffer. This is accomplished, when the amputation is below the knee, by allowing the stump of the leg to be received into a very carefully padded, thimble-shaped cavity in the upper part of the leg-piece, so arranged that the pressure is received at the point where the tibia and the fibula suddenly enlarge to form their upper articular extremities. The sides of the conical cavity in the leg-piece receive the sides of the stump, but without any pressure on the end of the stump. In order to diminish this pressure on the sides of the stump, and to

distribute the points of support over a greater surface, there is also a firm leather thigh-piece, in which, by means of a tight lacing, the thigh is firmly supported on all its sides, up as far as the trochanter; and thus a considerable part of the weight of the body is taken off from the stump below. The thigh piece and the leg-piece are united by a hinge at the knee. By thus taking advantage of every available point of support, both on the sides of the leg and on the sides of the thigh, the apparatus for leg amputations is made to be a very perfect, and a very comfortable substitute for the lost member; and it is wonderful to observe how easily and naturally some patients are enabled to walk with their artificial limbs. But it must be evident, at the same time, that the adaptation of a limb to a thigh stump is a very different and a much more imperfect thing. Here, the only support which can be got from the thigh, is from the sides of the upper or trochanteric portion; for any lateral support gained from the sides of the lower portion must necessarily so drag upon the end of the stump as soon to become intolerable. In this amputation, it is impossible that the stump should sustain any considerable part of the weight of the body, and advantage is therefore taken of the fixed points of the pelvis and of the trochanter—which is here, in one sense, rather a part of the pelvis than of the thigh—to afford the necessary assistance. Thus, divided between the trochanter and the tuberosity of the ischium, the weight of the body is mostly received on the pelvis itself, the stump being used mainly to give the forward motion to the artificial limb in walking; and the patient sits, as

it were, in a cushioned ring, which receives the pressure from the upper part of the thigh and from the tuberosity of the ischium. As a result of this contrivance, the patient walks like one who has anchylosis of the hip joint; the motions of progression being made mainly at the sacro-lumbar and intervertebral lumbar articulations. This mode of progression, though the best that can be attained, is not only ungraceful but laborious; and no patient with a thigh amputation can ever be made to walk great distances. In the knee joint stumps, all this machinery for gaining points of support from the sides of the limb is unnecessary. The broad end of the stump bears the whole weight of the body with perfect comfort, and no side pressure is necessary, except for the purpose of steadying the limb. In one case in which I amputated at the knee in a child about 2½ years old, the little thing could travel about the floor all day, walking on the sound knee and the stump, the stump being entirely unprotected by any padding; and when she became a little accustomed to an artificial limb, seemed to use one leg about as well and with as little fatigue as the other. In another case, that of a young woman, who did not feel able to afford an artificial limb, I found her several years after the amputation walking with her original peg leg, the end of the stump resting on a large excavated surface on the top of the wooden leg, which was not very carefully shaped to fit the stump, because it had been intended to be well padded, to receive the pressure of the end of the femur. This padding she had gradually come to neglect altogether, and now was walking miles every day with the end of

the stump resting on the wooden surface, with no protection but a few old cloths which she wrapped round it. It was perfectly hard and sound, and she assured me that it gave her no inconvenience. Mr. Fergusson, who has of late years advocated rather strongly the knee joint amputation, gives a wonderful instance, in which he says that one of his patients, with an indifferently padded common peg leg, could walk forty miles a day; and that on one occasion he had actually been known to walk one hundred and twenty miles in three successive days. This fact alone, that the end of the stump in knee joint amputations will bear the whole weight of the body with ease and comfort, is, in my judgment, sufficient to entitle it to a preference over any thigh amputation, even if it could be shown to be no more successful as far as regards the life of the patient. That it is really a more successful operation, as far as mortality is concerned, the considerations presented above give us good reason for believing; and the statistics which I shall presently offer warrant us, I think, in positively asserting.

The following is a brief report of all the cases which have come to my knowledge since the publication of my former paper. I have doubtless omitted many, but it has been because I have not known of their existence. No selection has been practised, and no authentic report rejected.

Case I.—Cath. Schoomaker, æt. 22, admitted into the New York Hospital Sept. 11, 1856, with chronic disease of the knee joint. The leg was amputated at the knee joint, after Mr. Symes's plan; the diseased

cartilaginous surface of the femur being sawed off so as to leave almost the full breadth of the expanded end of the bone. The patella, being diseased, was removed, and the entire synovial sac above it, which was much thickened, was dissected out. She recovered rapidly, and with a stump so serviceable that several years afterward I found her able to walk many miles a day, the end of the stump bearing on a very poorly padded socket of a common peg leg.

Case II.—Joanna Stagg, æt. 3, brought to New York Hospital Jan. 3, 1856, with right leg crushed under a city railroad car. She was amputated by the long posterior flap, containing a large portion of the gastrocnemious muscle. Great swelling of the stump took place, requiring all the stitches to be cut. She was in collapse when brought in, and though reaction was procured before amputation, it was not well sustained, and she sank and died six days after the injury.

Case III.—Jno. Frazer, æt. 19, brought into New York Hospital April 11, 1856, with railroad injury of right leg so disorganizing it as to require amputation. This was done at the knee joint by the long anterior and short posterior flap. Prostration very great. The ends of the flaps sloughed, and reaction was not sustained. He died on the 15th.

Case IV.—George Anderson, æt. 38, in the New York Hospital Aug. 25, 1856, with compound fracture of left leg, from being run over by a carriage. An attempt was made to save the limb, and it was put up in the double inclined plane. Violent traumatic delirium supervened, and for two days he was uncontrollable, doing his limb much injury by his frantic movements. By the 3d of September, the storm had passed over, and he became rational and quiet, with a fair pulse, but with a hot skin, tremulous muscles, and dull intelligence. A smart rigor occurred on the evening of

the 3d, and on the 4th, arterial hæmorrhage to the extent of twelve ounces. Under these unfavorable circumstances, the limb was removed at the knee joint. It was done in the usual manner, and almost without loss of blood. He rallied for a few hours, but soon began to sink, and died twenty-two hours after the operation.

Case V.—Caroline Hohe, æt. 30. Amputated at New York Hospital Dec. 9, 1856, for long-standing and extensive ulcers. A very long anterior and short posterior flap were made. Her condition was unfavorable from great anemia and constitutional irritation. Pulse 120. About an inch of the anterior flap sloughed. Suppuration took place of the synovial sac above the patella, somewhat retarding the cure. She finally did well, and was discharged with the stump firm and sound, and promising to bear pressure very well.

Case VI.—Richard Nutt, æt. 42; New York Hospital, Oct. 15, 1857. This was a case of disease of the knee joint of two years' standing. The limb was amputated at the knee, and the femoral condyles were found so free from disease that they were left untouched. The flaps were rather short. Hæmorrhage took place in the evening of the operation, making it necessary to open and leave open the surface of the wound. This allowed the already too short flaps to retract, leaving the end of the femur exposed. It became necessary to amputate higher up, which was done on the 26th of February. He died exhausted nine days after the second amputation.

Case VII.—A young man, æt. 19, presented himself at the clinique of the College of Physicians and Surgeons, with a tumor of the leg of a doubtful character. It was amputated at the knee joint April 18, 1857, in the usual manner. No bad symptoms supervened, and he recovered rapidly, with a good stump.

Case VIII.—Morris Griffin, æt. 30, admitted to New York Hospital December 13, 1857, having been run over by a fire engine, which severely crushed both legs below the knee. He had lost much blood, and was so greatly prostrated that amputation was not deemed justifiable until the 15th, when reaction being in some degree established, the left limb was amputated at the knee joint. The usual flaps were made, but the condyles of the femur being found injured, were removed about an inch above the articulating surface. The other limb was placed in a fracture box. No effective reparative actions were established. The stump did not unite, and looked sloughy, and no proper suppuration took place. He gradually failed, and died January 1, 1858.

Case IX.—A laboring man, æt. 58, was treated in Bellevue Hospital in September, 1858, for a bad compound fracture of the left leg, which involved the loss of several inches of the middle of the shaft of the tibia. Some hopes were entertained of saving the limb until the 1st of November, when, from the extensive suppuration and failing powers, amputation became necessary. This was done at the knee joint, in the usual way. The wound healed without accident, and he was discharged cured March 1, 1859.

Case X.—A boy æt. 14, was amputated at the knee joint, at St. Luke's Hospital, for extensive necrosis of the leg. The operation was done in the usual manner, on the 29th December, 1860. No bad symptom showed itself in the progress of the cure, which was complete in May, 1861.

Case XI.—A soldier of the Sixth Vermont Regiment was brought into the Hygeia Hospital, Fortress Monroe, wounded at Lee's Mills, by a piece of shell, which buried itself deeply in the upper part of the leg, wounding the posterior tibial artery. After the remo-

val of the fragment, secondary hæmorrhage took place, making it necessary to amputate the limb, which was done at the knee joint. Everything seemed to promise well, but on the second day gangrene seized on the end of the anterior flap, which spread steadily and destroyed his life on the fifth day after the amputation.

Case XII.—John M'Farley, æt. 7, was admitted into the New York Hospital, June 27, 1862, with severe injuries from being run over. The left leg was crushed nearly to the knee joint, and the right foot was hopelessly mangled. He was a delicate and sickly boy, and had lost a great deal of blood. He was therefore in a state of extreme depression. By great care and perseverance, reaction was procured to a degree that seemed to warrant an amputation of the worst limb at the knee joint. For some days after the operation, he absolutely refused to take any food, and was nourished solely by enemata. At the end of a week, he seemed to improve a little, but on the 9th of July, sloughing began in the anterior flap. This process spread steadily and he sank exhausted July 19, 1862.

Case XIII.—Paul Brownson, æt. 13, came into St. Luke's Hospital, September 20, 1861, with a necrosis of left tibia, so extensive as to require amputation. He was much reduced by his disease, and the operation was delayed, with the view of improving his condition, until the 26th November, when the limb was removed at the knee joint, by a short anterior and long posterior flap. The cure proceeded very rapidly, and was not interrupted by the exfoliation of a piece of cartilage about an inch long and a quarter of an inch wide, which came away while the wound was healing. The stump was perfectly healed January 1, 1862.

Case XIV.—Claudius Best, æt. 14, admitted to St. Luke's Hospital November 26, 1861, with necrosis of right tibia. The extent of the disease, as well as the

deformity produced by the bending of the bone, close up to the knee, made it proper to remove the limb at the knee joint, which was done on the 17th December. Inflammation of the synovial cul de sac took place, terminating in abscess, which remained open, discharging a nearly clear synovial fluid, until the 1st of February, when it closed. By this time the stump was entirely and soundly healed.

Case XV.—Julius Myers, æt. 18, was brought into the New York Hospital, September 3, 1862, with a compound fracture of the right leg, with other injuries. The leg was so much shattered as to require immediate amputation, which was done at the knee joint, in the usual manner. From his numerous injuries, he was in a feeble condition, and suffered much. Little or no union took place, and abscesses formed in several spots. His progress was therefore slow, but he finally did well, without any special accident to the stump, and was discharged cured December 9, 1862.

Case XVI.—Christian Weber, æt. 47, was admitted into the New York Hospital, September 16, 1862, with a bad compound fracture of the right leg, for which amputation at the knee joint was performed soon after his admission. His progress was satisfactory until the twelfth day, when hæmorrhage occurred from the wound, which was by this time almost united. This recurred once or twice, making it necessary to open, and leave open, the wound. No further accident occurred; the wound healed slowly, but soundly; and he was discharged cured November 25, 1862, with a promising stump.

Case XVII.—Adam Miller, æt. 39, with severe injury of leg, was admitted to the New York Hospital, October 9, 1862. Amputation at the knee joint was performed, the next day, in the usual manner. The flaps were made about equal in length on account of

the contusions. On the 12th hæmorrhage occurred, and on the 13th for a second time. The stump was opened and an artery tied. He continued to fail, however, and died on the 15th.

Case XVIII.—A young woman at St. Luke's Hospital, who had been operated on May 25, 1861, for the extraction of a loose cartilage from the knee joint, found the knee so weak and tender, and therefore so useless, that, about a year after, she anxiously desired to be rid of the limb. It was removed at the knee joint, in the usual way. The stump healed rapidly and perfectly, leaving her, when fitted with Palmer's leg, able to walk very much to her satisfaction.

Case XIX.—Edgar Carter, æt. 23, was brought to the New York Hospital, February 23, 1863, with his leg severely crushed by being caught between the ferry-boat and the dock. It was amputated at the knee joint the next day. The wound did badly; considerable sloughing took place; erysipelas supervened, and he finally died March 22, 1863.

Case XX.—John O'Brien, æt. 4. Brought to the New York Hospital, January 7, 1863, with the left leg crushed by the wheel of a railroad car. It was amputated at the knee joint, with a very long anterior and very short posterior flap. The wound did well, though a considerable piece of the long flap sloughed away, leaving the condyles exposed. Adhesive strips were arranged, as described hereafter, so as to draw down, with a weight over a pulley, the integuments of the thigh, and thus the covering of the exposed condyles was secured, and the final satisfactory healing of the stump. He was discharged cured.

Case XXI.—Henry Agnew, æt. 34, received into the New York Hospital, March 12, 1863, with extensive injuries of the left leg, from being caught in some

machinery. Hoping to save the limb, amputation was postponed until the 21st, when it became the only chance of saving life. It was done at the knee, in the usual manner. For a few days he seemed to be doing well, until the 25th, when he became feverish and delirious at night. Uncontrollable diarrhœa set in, and chills occurring at irregular intervals. After each chill he became more violently delirious, and it was impossible to keep him from inflicting injury on his stump. The continuance of these symptoms gradually exhausted him, and he died on the 16th of April, 1863.

Case XXII.—Lewis Baker, æt. 22, was brought to the New York Hospital with the left leg crushed by a railroad car, July 19, 1863. Amputation at the knee joint was performed. His progress was interrupted by a large abscess on the anterior part of thigh, but he was finally discharged cured, and with a good stump, November 23, 1863.

Case XXIII.—Eliza Smith, æt. 40, was received into the New York Hospital, September 21, 1863, with a compound fracture of the left leg, which was followed by so extensive suppuration and loss of substance, that amputation became necessary. It was done at the knee joint, on the 8th of October, with a long posterior and short anterior flap. Sloughing of the anterior flap occurred, exposing the condyles, but by the use of the extension by adhesive straps, and the weight and pulley, the bone was covered and the wound soundly healed. Discharged, cured, February 16, 1864.

Case XXIV.—John Short, æt. 24, brought to the New York Hospital December 5, 1864, with a compound fracture of the leg, from a railroad accident. Leg amputated at the knee joint by two nearly equal lateral flaps, as the condition of the integument made it necessary. He did well until the 13th, when hæmorrhage came on with such suddenness and severity,

that before the popliteal artery could be tied, he was so reduced that he died on the following day, December 14, 1864.

Case XXV.—James O'Shaughnessy, æt. 3, was run over by a railroad car, March 6, 1864, receiving a severe compound fracture of the leg. Amputation was performed at the knee joint, with a long posterior flap, containing a large portion of the gastrocnemius muscle. The surface of the condyles was pared off by a scalpel. For a few days he did well, but on the 11th the surface of the wound looked sloughy, and he began to fail. He ran down rapidly, and died seven days after the injury.

Case XXVI.—Jesse Newell, æt. 12, was operated on at St. Luke's Hospital, for necrosis of the tibia. From the extent of the disease, its proximity to the knee, and the great deformity it had produced in the limb, it was deemed best to amputate at the joint. This was done on the 26th of August, 1864, in the usual manner. Everything went on favorably, and when I saw him, nine days after the operation, he promised a rapid cure. He ultimately recovered.

Case XXVII.—Jacob Bibby, æt. 32, had his leg crushed between a ferry-boat and the bridge, by which it was so severely injured that amputation was necessary. It was done at the knee joint, by Dr. Van Blarcom, of Paterson, New Jersey, with a large posterior flap, a method suggested by the condition of the integuments. The progress of the cure was rapid. A piece of articular cartilage, as large as a ten-cent piece, exfoliated; but this seemed scarcely to delay the healing of the wound, which was completely cicatrized in six weeks from the time of the operation.

Case XXVIII.—Thomas Slennon, æt. 31, admitted to the New York Hospital, September 2, 1864, with

left leg crushed between two cars. Amputated immediately with the usual flaps. Everything went on well. Two abscesses formed during the progress of the cure, giving, however, but little trouble, and he was discharged with an excellent stump in November, 1864.

Case XXIX.—Robert Jackson, æt. 44, was brought to the New York Hospital, September 6, 1864, with compound fracture of the right leg, which was attacked by erysipelas. As soon as the inflammation was sufficiently abated, the limb was removed at the knee joint. Inflammation and sloughing attacked the stump, and he died October 15, 1864.

Case XXX.—John M'Tiernay, æt. 15, admitted to the New York Hospital, September 17, 1864, with compound fracture of the leg from a railroad injury. An attempt was made to save the limb, but amputation at the knee joint finally became necessary. Some sloughing occurred of the flaps, exposing the condyles. By steady traction with the weight and pulley, acting upon both flaps by adhesive plaster, the exposed bone was finally covered, and a very good stump resulted. He was discharged, cured, February 17, 1865.

Case XXXI. — Dennis Caneely, æt. 11, brought into New York Hospital November 9, 1865, with railroad injury so severe as to require amputation of the leg. This was done immediately at the knee joint. Some sloughing occurred, but not enough to prevent the final healing of the wound, which was much facilitated by traction on the flaps as in the former cases.

Case XXXII.—Dr. Robt. F. Weir, formerly of the army, sends me this case: "Robert Kelly was wounded August 18, 1864, by a minie ball, which entered on the outer aspect of the left knee joint, and lodged, as he states, in the head of the tibia. The limb was removed the same day at the joint by a long posterior flap,

the patella being left in situ. The stump healed in about six weeks." He was seen by Dr. Weir in April, 1865. "The stump was free from tenderness, and capable of bearing the weight of the body."

Case XXXIII.—Jno. Barnes, æt. 20, was brought into New York Hospital with right foot torn off by being caught in a hawser. The lacerations were so extensive that immediate amputation was performed at the knee, in the usual manner. At first he did well, and the stump advanced far toward healing. On the 20th February, however, he had an attack of pleurisy with effusion, under which he gradually failed, and died March 17, 1865.

Case XXXIV.—Robert Wintringham, æt. 41, admitted to the New York Hospital in August, 1865, with severe injuries of the right leg from being run over by the tender of a fire engine. An attempt was made to save the limb, but was soon abandoned, and on the 14th of August amputation at the knee joint was done. He died of tetanus on the 24th.

Case XXXV.—Patrick M'Auley, æt. 56, brought into the New York Hospital July 1, 1866, with bad compound fracture of leg from jumping off rail car while in motion. Greatly depressed by shock. Amputated at knee joint three hours after admission. He failed much during the operation, and though he rallied somewhat during the following night, he gradually sunk and died on the 5th.

Case XXXVI. — Is. W. Layman, æt. 27, came into the New York Hospital May 14, 1866, with severe crushing of left leg from being caught between two tow boats. An attempt was made to save the limb, but inflammation and sloughing were so destructive that it was amputated, June 12th, at the knee joint. The flaps being scant, the condyles of the femur were sawn

off about an inch above the joint. Inflammation and abscess of the synovial sac took place, but he made a a good recovery, with a good prospect of a useful stump.

Case XXXVII. — James Fitzgerald, æt. 29, admitted into the New York Hospital December 18, 1865. His left leg had been amputated, about a year before, for an inconvenient anchylosis of the knee. The stump had behaved badly, and had never healed. Amputation at the knee joint was performed on the day of admission. Stump healed kindly, and he was discharged cured Jan. 20, 1866.

Case XXXVIII.—Dr. W. H. Van Buren sent me an account of a case in which he amputated at the knee joint, in February, 1866, in a little girl, æt. 10, for osteo-myelitis of tibia, from a fall upon the ice. The oval method was employed in making the flaps. The recovery was slow, but complete, with a well formed stump.

Case XXXIX. — Melville Olyphant, æt. 31, admitted to New York Hospital April 16, 1867, with disease of knee joint, which had supervened on an old anchylosis. Amputation at the joint was performed on the 22d, with the usual flaps. The joint was extensively diseased, cartilages ulcerated, articular lamella bare, and in spots necrosed. The surface of the condyles was removed by the saw. The patella, being firmly adherent, was left. His progress was at first rapid, but was afterward delayed by an abscess in the popliteal space. He finally recovered, with an excellent stump.

Case XL. — Frank Stone, æt. 14, brought to the New York Hospital May 14, 1867, with a crushed leg from a rail car injury. Though he was much prostrated by the injury, the leg was amputated at the knee joint. His recovery was slow. Some sloughing of the

flaps took place, but, by the extension plan, he recovered with a good stump.

Case XLI.—Edward Toner, æt. 35, admitted to the New York Hospital, with severe injury of the left leg from the falling on it of an iron pipe. An attempt was made to save the limb, but at the end of a month it was amputated at the joint. He made a good recovery.

Case XLII.—Thomas Courtenay, æt. 30, admitted to New York Hospital October 30, 1867, with severe compound fracture, from being caught under a heavy truck which broke down. Amputation by the long posterior flap. He sank rapidly, and died during the night after the operation.

Case XLIII.—Edward Brophy, æt. 21, brought to the New York Hospital October 3, 1867, with right leg crushed between the ferry boat and the dock. Amputation was performed, eighteen hours after admission, at the knee joint. Mortification attacked the stump, and he died seventy-two hours after the operation.

The following cases have been collected from the records of Bellevue Hospital.

Case XLIV.—A little girl, æt. 10, was brought into the Hospital in August, 1866, with a bad compound fracture of leg, produced by being run over by a rail car. The limb was amputated at the knee joint, with the usual flaps. She made a good recovery, and was discharged cured about two months afterward.

Case XLV.—Michael M'Donald, æt. 16, admitted August 13, 1866, with a crushing rail car injury of leg. He had lost much blood, and was much prostrated. Amputation was performed at the knee joint. No full reaction took place, and he died on the second day after the amputation.

Case XLVI.—Margaret Baker, æt. 65, was brought in November 1, 1866, with a leg crushed under a loaded cart. She was amputated at the knee joint, the lateral flaps being adopted, instead of the antero-posterior. A slight slough and an attack of erysipelas somewhat retarded her cure, but ultimately she recovered with an excellent stump, in which the antero-posterior cicatrix, resulting from the union of the lateral flaps, was well protected between the two condyles of the femur.

Case XLVII.—Elizabeth Munroe, æt. 71, admitted April 19, 1867, with symptoms indicating gangrene from embolus of the left leg. At May 21st the gangrene seemed arrested, and amputation at knee joint was performed. Gangrene attacked the stump, and she died on the 26th.

Case XLVIII. — James O'Shaughnessy, æt. 19, brought in August, 1867, with right leg crushed by a car wheel seven hours before. Very much depressed from loss of blood. Amputation at knee joint was done in the usual way. Slight sloughing occurred, but, by extension, the wound finally healed.

Case XLIX.—Augustus Waterman, æt. 15, brought in August 19, 1867, with right leg crushed by a car wheel. Primary amputation at the knee joint was performed. The flaps proving short, the patella was removed. Sloughing took place, of the anterior flap, to so great an extent that, though he was doing very well in all other respects, it was necessary to reamputate through the thigh. This was done on the 7th of September. He died of a crural and abdominal phlebitis ten days after thigh amputation.

Case L.—William Costello, æt. 9, brought in September 4, 1867, with extensive crushing of left leg. He was much prostrated from loss of blood and shock of

the injury. The limb was amputated at the knee joint by a circular incision. During the operation he failed very much, and at six o'clock of the same day he died.

Case LI.—Dr. Robert F. Weir sends me the following case of double amputation, performed by him at St. Luke's Hospital: "S. D. Chase, æt. 25, was admitted Aug. 12, 1867, with severe railroad injuries of both legs. The left limb was amputated at the knee joint, by the long anterior flap. The right was removed at the usual point below the knee. The flap, in the knee joint stump, sloughed for two and a half inches; but, by the extension dressing, healing of the wound was accomplished, and a very useful stump has resulted. The other leg also did well, and he was discharged cured Oct. 10, 1867."

In addition to these cases, I have a verbal report from Dr. S. H. Tewksbery, of Portland, Maine, of four successful cases occurring in his practice. He has promised me the notes of these cases, but they have not arrived in time for this publication.

The experience which has thus accumulated, on this subject, begins to give some value to statistics founded upon it. We find in the above report, and in my former paper, seventy-three cases, occurring in American hospitals and private practice, embracing all that have come to my knowledge, and including Dr. Tewksbury's cases not reported. Of these seventy-three cases we have twenty-five deaths; making the rate of mortality on the whole number thirty-four per cent. The value of this statistical resumé depends upon its being compared with a similar statement as to the mortality of amputations of the thigh. Taking Mr. Philips's statements as a basis of comparison, we find

that of 987 instances of amputation of the thigh, collected from all sources, hospital and private practice, 435 died, a mortality of forty-four per cent., making a difference on the whole number of cases, of ten per cent. in favor of the knee joint amputation.

This general statement, however, seems to want precision, inasmuch as the sources from which the cases were collected were probably different in the two tables. A more precise comparison would be instituted by taking the cases occurring in one institution, when the conditions might be supposed to be nearly identical. Thus taking the recorded cases of amputation of the thigh at the New York Hospital, from the year 1830 to the year 1864, we have a total of sixty-one amputations and thirty-three deaths, or fifty-four per cent. Of the knee joint amputations, we have thirty-nine operations and twenty-one deaths, a mortality again of fifty-four per cent., exactly the same as the mortality of amputations of the thigh. This exhibit shows no advantage on the side of the knee joint operation, it is true; but I think some allowances are to be made, which will perhaps incline the verdict in its favor. I am myself quite conscious that the novelty of the operation, the interest which attaches to it, as one which is rarely resorted to except by our own surgeons, and still more, the anxiety to preserve for the patient the benefits of a knee joint stump, have sometimes biased my judgment, and led me to operate at the knee, when it would have been better for the life of the patient, to have amputated through the thigh. If these feelings have at any time had any influence upon my colleagues,

it would not be unfair to say, that our statistics do not actually represent the relative value of the two operations, but that, with all allowances made, the knee joint is the safer operation of the two. I have no right to claim this as proved, but I most confidently believe it to be true.

In respect to the value of a knee joint stump, so important a feature of the present discussion, I am happy to have my opinion fortified by the judgment of my friend Dr. E. D. Hudson, who has for so many years, and with so much ingenuity and success, devoted himself to the mechanical appliances which amputations and mutilations of all kinds render necessary. I give his letter entire.

696 Broadway, New York, Jan. 23, 1868.

Dear Doctor: I have the honor to comply with your request to communicate my knowledge of knee joint amputations, the result of my study and experience. It always affords me pleasure to contribute to every practical improvement in Surgery, based upon principles of anatomy and physiology. In all of such surgery, science, and humanity, are sure victors of prejudice and its evils.

The history of twenty-three cases of amputation at the knee joint, committed to my charge for surgical therapeutics, has furnished me with the most indubitable proof of the unbounded merits of that operation, compared with any amputation, be it ever so favorable, of the continuity of the thigh. The practical and beneficent result, in each of these cases, has been greatly superior to any that can possibly be realized from a thigh amputation, and establishes the operation, with me, as one of the greatest improvements of modern surgery.

The age of the respective cases ranges from fourteen to sixty years, and includes both sexes, and the various diatheses. The causes of the amputations were disease and destructive casualties, mostly the latter; hence the varieties of operation, determined by the condition of the parts in the immediate vicinity of the knee joint and the preconceived ideas of the operator. In a majority of the cases, long anterior and

short posterior flaps were made; in other instances, the short anterior and long posterior flaps; anon, antero-posterior flaps, united immediately across the base of the condyles. In some of the cases, the patella was removed; in others retained. With the majority of the cases, the condyles were entire, in others sections of cartilaginous and osseous tissue were made; and in one instance, the epiphysis was wholly removed beyond the line of the articular fossa.

With one exception cicatrization was complete. The exceptional case was treated prematurely, through importunity, but eventually became soundly cicatrized and serviceable. Thus of the twenty-three cases with their modifications, the final result was, and has continued to be, all that could be desired. No untoward event has occurred to occasion a regret that the amputation was made at the knee joint, as the alternative of a thigh amputation. On the contrary, every case furnished cause for gratitude that the amputation was not of the thigh in its continuity. Two of the subjects had suffered double amputations; one at the knee joint and of the leg, the other one at the knee joint and of the thigh. In the latter case, the knee joint stump contrasted most significantly with the thigh stump, in its bearing and usefulness. It became the main dependence of the subject for his support and locomotion.

With such deductions, and improved practice in surgery, I have, since its early introduction, studied to arrange and adapt compensating appliances to sustain the operation, and realize for my patients the ultimate benefit of articular parts, as natural supports. Neither have I failed of the most perfect and gratifying success. When the condyles have not been mutilated in the operation, my principle of action has been to fill the articular fossa, even with the base of the condyles, with a triangular or well constructed elastic pad, to equalize the base of support and to insure comfort. The elastic pad is attached to a wide leather socket, which is skillfully shaped and adapted to the end and sides of the stump, and strongly attached to a light wood casement for the posterior and lateral parietes of the thigh. This encloses the thigh, which is retained in its place by leather bands, buckled or laced around its anterior aspect. It affords a very neat contour and finish, great strength, and an extra available leverage for propulsion. Thus the amputation and the artificial limb for it, in every feature, are important improvements, with which the thigh amputation and its practical results bear no satisfactory comparison.

The most perfect variety of operation that I have observed, has been

composed by the long anterior flap, with one exception. Recently my attention has been invited to an amputation at the knee joint, of an elderly woman, an inmate at the Bellevue Hospital, originated and performed by Dr. Stephen Smith. He made bilateral flaps, which covered the entire base of the condyles, and passed up posteriorly, securing perfect cicatrization, at the junction of the epiphysis and cancellated parts. His improvement appeared to me to perfect the operation.

The adage "Let well enough alone," should be strictly applied to the condyles, unless they are superficially diseased, in which event, a section involving a portion, or nearly the entire epiphysis will prove superior for service to any amputation of the femur in its continuity. To excise any portion of the condyles, for the specific purpose of enlarging their area of support, I regard as injudicious. The therapeutical appliance should supply every such desideratum.

Such, in brief, is a summary of my experience and reasons, cheerfully rendered, relating to one of the most important improvements of surgery. I am confident, that as the light of science rises, prejudice will yield to more enlightened views and practice, when knee joint amputations, and their kindred operations at the ankle joint, will precede both thigh and leg operations whenever the opportunity offers.

I am, very respectfully,

Your obedient servant,

E. D. Hudson, M.D.

Thomas M. Markoe, M.D.

The cases to which this amputation will be applicable, will be those in which the choice lies between operation at the knee and operation above it. No case, I think, can justify amputation at the knee, if it can safely be accomplished below it. All such injuries of the leg as approach so near the knee as to preclude amputation through the leg; all such diseases of the bones of the leg as, without involving the knee joint, leave no sound portion of tibia available for a stump; and, lastly, a certain number of cases of diseased knee joint, when there is reason to believe that the end of the femur is

but little affected by the destructive actions; all these will present occasions for amputation at the knee joint, in which amputation of the thigh would be the only alternative. The class of cases last mentioned, namely, cases of diseased knee joint, seem to me to present a very important and a very interesting surgical question, in reference to the safety and advantage of amputating through the knee joint for diseases of the knee joint. Mr. Syme was the first to call attention to this subject in a communication published in the London and Edinburgh Journal of Medical Sciences in 1845. In this paper he announces it as his opinion that the thigh bone ought never to be divided in its middle compact portion, but always through the spongy substance of either the condyles or the trochanters. This opinion he has arrived at, from the consideration of the numerous accidents of osteitis, necrosis, and osteo-myelitis, which are admitted to depend on the fact of the bone being sawed through its central medullary, instead of its articular cancellated regions. In regard to this point of disease of the knee joint, treated by amputation through the joint, he says: "In regard to diseases of the knee joint, it is well ascertained that the warrant for amputation lies in the bone, and not in the soft parts, which, however altered through scrofulous degeneration or suppuration, readily admit of restoration to their natural condition, as is clearly shown by what happens after excision of the elbow or amputation at the ankle joint." He then goes on to propose amputation through the diseased joint, and gives several cases in which he has successfully performed it. Mr.

Fergusson has several times done the operation, as has also the late Mr. Jones, of Jersey, and both are warm in their advocacy of it, as, in certain appropriate cases, a sound and successful operation. I have once performed the operation, and with so gratifying a success that I propose to repeat it whenever a proper case presents itself. The patient was a young woman, aged 22, with a chronic disease of the knee joint, of about three years' standing. I removed the limb at the joint by a procedure which did not differ from the ordinary amputation at that point, except that a thin layer was removed from the surface of the condyles, and the ends of the bone smoothed off as carefully as possible by the bone forceps, so as to present nearly as broad and even a surface as that of the natural condyles. (This plan, I should remark, of sawing off the articular surface of the femur, is adopted, by several surgeons, as an advisable step in the ordinary amputation at the knee, where everything about the joint is free from disease or injury.) The resulting stump was as good and useful a one as I have ever seen. This case is published in detail in the New York Journal of Medicine for November, 1856. It is not easy to pronounce positively as to the cases of knee joint disease in which amputation at the joint is permissible, but in general terms it may be said that the operation at the joint should be confined to those cases where both the bone and the soft parts left in the stump are comparatively sound. In many instances the articular end of the femur is only superficially affected. Erosion of cartilage may exist; ulceration and necrosis of the articular lamella may

have made some progress; the necrosed plates may have separated, opening into the cancellous tissue above; and yet the morbid processes, though they have reached this destructive and hopeless extent, may not have involved the femur to a depth of more than two or three lines; and a section of a thin layer of the actively diseased surface may leave the bone tissue in a condition capable of prompt and healthy reparative action. If, with this condition of bone, we have the soft parts not undermined with abscesses; not perforated by many fistulous openings; not too much involved in the inflammatory thickening of the deeper soft parts; we have good reason to expect that the tegumentary part of the wound will granulate and heal at least as favorably as the sawed bone; and that, though we may not have a rapid, we will have a perfect cure. In cases, on the other hand, where the bone tissue is infiltrated with the strumous products of long-continued disease; or where the ravages of inflammation have reached parts far distant from the articular surfaces; or where the soft parts covering the joint are too much involved in the destructive process which has been going on; then the idea of amputation at the joint should be at once abandoned.

The mode of operative procedure is so frequently determined by the condition of the parts after the injury that, I doubt not, most surgeons will arrive at the same conclusions that have gradually forced themselves upon us, namely, that it is really of comparatively little consequence what particular method of cutting the flaps be adopted, provided only that enough

integument be left amply and easily to cover the expanded extremity of the femur. A miscalculation is easily made on this point, and it is one so vital that the greatest care should be exercised. The consequences of scantiness of flap, in this amputation, are more disastrous than in amputation through the continuity, inasmuch as if the flaps fail to cover the bone, in knee joint amputation, a reamputation is the only resource; whereas, in amputation through the shaft of the femur, where the end of the bone is not well covered, we can commonly, by a very simple manipulation, push up the granulating soft parts, and saw the bone at such a point higher up as will permit it to be properly covered, and the stump to be soundly healed. I would therefore earnestly recommend to every one who has not been in the habit of performing this amputation, to allow himself at least one third more flap than his eye judges to be necessary; he will rarely find it too much, and if it should prove redundant it is easily trimmed to fit; a procedure which, under ether, is of no importance, when it is considered how much is risked by want of original liberality in making the flaps.

We have been inclined to give preference to a long anterior and a short posterior flap; and for several reasons: 1st. A flap thus taken from the anterior surface of the leg brings a thicker, tougher, and therefore, probably, a more useful covering to the condyles, as far as bearing pressure and general rough usage is concerned, than one taken from the thinner, softer, and therefore more tender integument at the back of the knee. 2d. Such a flap throws the opening of the stump,

during the healing process, toward the back and lower part of the stump as the patient lies on the bed, and therefore gives ready issue to the discharges, and forms no pouch or pocket in which they will be likely to be retained. 3d. The ligatures are all or nearly all in the popliteal region, and therefore come to the surface more directly, when the line of junction of the flaps is thrown well back, than when it occupies any other position. 4th. The cicatrix, in this method of operation, is found to be at the posterior aspect of the stump, behind the swell of the condyles, and therefore better protected from pressure than it could be at any other point. For these reasons—as will be seen by glancing over the reported cases—the greater number have been operated upon by the long anterior and the short posterior flap. In several instances, where the injuries required it, a long posterior flap has been adopted. In some other cases, a circular incision has been made; and occasionally the most irregular shape has been given to the line of incision, as the contusions or lacerations extended higher on one side of the limb or the other. The most important modification of the operation, however, is that suggested and performed by Dr. Stephen Smith, Surgeon of Bellevue Hospital. He makes two lateral flaps of equal size, cutting them in such a way that the incision begins lower down in front than behind; so that when it is completed, the line of union of the flaps is thrown backward toward the popliteal region, and is entirely lodged in the deep fossa between the two condyles of the femur; and is thus, not only by its posterior position but by the projection of these condyles,

shielded from any risk of pressure. Inasmuch as this mode of operation fills all the other requirements for a good and useful stump, it seems to me to be the one to which hereafter I shall give a decided preference. This mode of making the flaps has, I think, another recommendation derived from their comparative length in the two cases. In the single flap, whether anterior or posterior, great length is necessarily given in order to cover the large expansion of the condyles. That this great length is a disadvantage, the numerous examples of sloughing, afforded by the records, most clearly show. The lateral flaps, by dividing equally the great length of the single flap, diminish just so much the danger of sloughing, as a short flap is more likely to maintain its vitality than a long one. But, whatever operation be selected, let it never be forgotten, that more flap is necessary in this than in any other amputation; and that a prime requisite of success is that the ends of the bone should be covered fully, easily, and without tension.

In making the posterior flap, whether long or short, the upper portion of the gastrocnemius muscle remains, and when brought forward, makes an unnecessary and unseemly projection at the back part of the stump. We have generally removed it entirely, so that the whole flap is composed of nothing but integument. This procedure, too, simplifies the wound, leaving it to present only the small cut ends of tendons, rather than the larger divided bellies of muscle.

There seems to be no good reason why the patella should be removed; and several good ones why it

should not. We have therefore always left it, and have had no reason to wish we had done otherwise. By the contraction of the quadriceps extensor, it rises upon the anterior surface of the femur from two to four inches above the joint, and there remains quietly, giving no trouble by its presence either to the patient or to the adapter of artificial limbs. In cases where the patella is injured, or where it is in a diseased condition, it may be advisable to remove it. This was done in several of our cases, and did not seem to add materially to the severity or danger of the operation.

By several surgeons who have written upon this subject, it is insisted on that the cartilaginous surface of the femoral condyles should be removed. This can be done with appropriate instruments, in such a way as to leave a very smooth, even surface of exposed cancellous tissue, very little smaller, and nearly as well adapted to bear pressure as when the condyles are left uncut. The practice is undoubtedly founded on a conviction that the cartilaginous surface of the joints is so unfavorably disposed toward healthy action in repair, that it is better to get rid of it, by its abscission, than to run the risks which its evil behavior in the stump is likely to superinduce. I think this view is an unfounded one, and the practice based on it unnecessary and unwise. The general fact that the synovial and cartilaginous surfaces of the joints, when exposed in amputation, have no tendency to interfere with the process of healing of a stump, is now by a large experience undeniably proved, for the small and for many of the larger articulations. In amputations, for exam-

ple, of the fingers, of the hand at the wrist, of the shoulder, and of the ankle, we have no apprehension of any trouble from this source, and we do not experience any. The cartilaginous surface once hid from view in the stump, we rarely hear of it again, either during the healing, or after the perfect cicatrization of the wound. This general fact has no exception in the knee joint. In the cases in which we have operated in the hospital, and in fact in almost every case embraced in this report, the condyles have been left unwounded, and in no case have we observed anything unfavorable to result from so doing. In several instances it has happened, that, from sloughing or retraction of the flaps, the cartilaginous surface has been exposed to view during a portion of the time occupied by the healing of the wound, and in those cases we have had an opportunity of observing its behavior and comparing it with that of the surrounding tissues. We have noticed that the cartilage underwent either a gradual transformation of its substance similar to that described by Mr. Redfern, as preceding its ulceration, out of which changed substance, granulations spring up, or else a proper necrosis, by which a layer of it is detached *en masse*, and comes away like a slough, or rather an exfoliation, in any other situation. The process is thus described in the notes of one of my early cases.

"Where the flaps were a little drawn apart by retraction, there was exposed to view about three fourths of an inch square of the cartilaginous covering of the outer condyle. At first it looked white and shining, like healthy cartilage, but gradually the peripheral por-

tion became converted into a soft pultaceous layer, of a greyish color, looking like soaked greasy leather. This change spread in about a week over the whole exposed surface, and in this soft substance granulations rapidly sprung up, which soon converted it into a florid suppurating surface. The exposed cartilage all underwent this change, except a small piece, about as large as a three cent piece, when the transformation seemed to go on under it, and between it and the bone, so that it was detached in a thin layer unchanged. This process was completed about the twenty-second day. The ligatures had all come away by the nineteeth day. On removing the loose sequestrum of cartilage on the twenty-fifth day, it was found to be connected with a larger piece remaining under the anterior edge of the wound. The whole was as large as a shilling piece, and came away easily, leaving a healthy granulating surface beneath."

The behavior of exposed cartilage has been watched in several other instances, and has presented phenomena so similar to those above described, that I am disposed to believe that it is what may ordinarily be expected to occur in the cartilage, when the rest of the wound presents an equally satisfactory progress, and that we may usually expect that the changes in the cartilage will go on rapidly enough to enable that tissue to take its part in the healing process without interference or delay. It seems, therefore, to me very desirable that the cartilage should be left untouched, and if for no other reason, because it leaves the bone unwounded, the cancellous tissue unopened, and therefore

less liable to all the accidents which are apt to happen to injured bone.

During the progress of healing there sometimes is found to be a tendency to retraction of the whole integument of the limb, so that flaps which are originally abundantly sufficient gradually fail to cover completely the end of the bone, leaving thereby a broad surface to cover with granulation. Now it is true that if the flap is properly fitted at the time of operation, this retraction, which is common to all amputations of the larger limbs, will only delay and not prevent the healing of the wound, but if the flaps should be originally scanty, or if, from sloughing, some portion should have been lost, then this gradual tendency to retraction becomes a serious matter, and may determine an unfavorable or an imperfect result, where we had good reason to expect better things. We have sought to obviate this difficulty by the use of elastic extension applied and steadily maintained upon the integuments of the stump. A broad strip of adhesive plaster is placed lengthways over the anterior face of the thigh, and descending in a long loop below the end of the stump, returns to be applied in a corresponding manner on the posterior surface, rising as high both before and behind as the level of the trochanters. One or two transverse strips may be applied to steady the longitudinal bands, care being taken not to make any circular constriction round the limb, or if the wound be further advanced in healing, a bandage may be applied which will give proper support to the adhesive straps. To the loop of adhesive plaster, which descends

below the stump, a cord is attached which passes down to the foot of the bed, over a pulley, and is attached to a weight after the method commonly used in making extension in fractures of the thigh. Some part of the extending cord should consist of india rubber, so that its elasticity may be availed of to equalize the action of the weight. By this apparatus, a steady force is brought to bear on the integuments of the whole limb, by which not only is the tendency to retract entirely obviated, but something may be actually gained in cases where the flaps are positively too short to cover the bone, without some such assistance. By this contrivance we have, in several instances, secured the sound healing of the wound under circumstances which seemed very unpromising, and where without it, a good result would not, apparently, have been obtained.

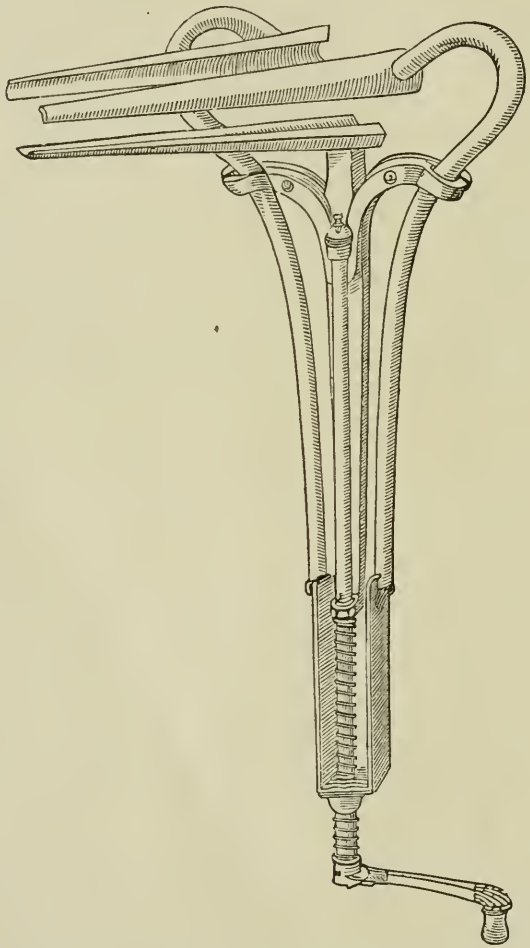
ART. II.—*Ancient Specula, and the Conical or Cylindrical Speculum of the Moderns.* By WM. R. WHITEHEAD, M.D., New York.

A GLANCE at some of the earliest specula known, may serve to form a proper appreciation of the excellences, or make more apparent the defects, of the modern instruments of this kind; and, at the same time, afford an occasion incidentally to offer a few remarks concerning the usefulness of the common round glass speculum.

In briefly alluding to some of the ancient specula, I propose to exhibit by wood cuts representations of two, which, from their remote origin and ingenuity of conception, are eminently deserving of notice.

Paul of Ægina, during the seventh century, was known for his knowledge and successful treatment of diseases peculiar to women, and described the speculum vaginæ under different names. Fabri-

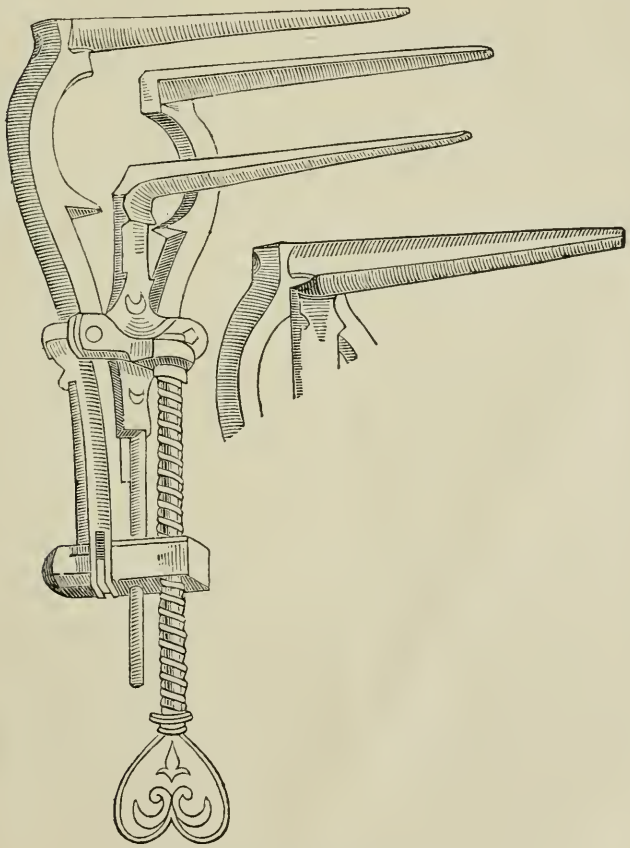
Fig. 1.



SPECULUM VAGINÆ, USED BY FRANCO, MORE THAN THREE CENTURIES AGO.

cius (ab Aquapendente), who wrote at a much later period, and was contemporary with Franco, held Paul in such high esteem as to rank him with Celsus ; and it is probable that the speculum attributed to Fabricius was either the same used by Paul, or suggested by his writings. Rhazis, in the tenth century, and Albucassis, in

Fig. 2.



SPECULUM USED BY AMBROISE PARÉ.

the eleventh century, described the speculum vaginæ, as did Paul of Ægina, under the names DIOPTRA, TORCULUM VOLVENS, etc. Several centuries later, Franco, Paré, Scultet, and others, adopted the word Speculum, which is now the one generally used.

Fig. 1 represents the speculum vaginæ used by Franco,* and which has been exactly copied from that surgeon's work. The instrument is sufficiently well exhibited to permit, by careful inspection of the drawing, to dispense with an explanation. Fig. 2 shows that used by Ambroise Paré,† and which may be seen in his work at page 997. The branches of this instrument were of the length of eight or nine fingers breadth; or proportioned to the age and size of the woman. These instruments were not essentially different from those found in the ruins at Herculaneum. They were somewhat similar to that of Paracelsus, in use during the early part of the sixteenth century, and were not very unlike that of Fabricius ab Aquapendente. The instrument of Fabricius,‡ however, had a cumbrous mechanism, with a right and left screw to move its three valves.

It is probable that Guillemeau, and afterward Mauriceau, Peu, and Viardel, were familiar with the speculum used by Paré; especially Guillemeau, the pupil of Paré, and the translator of his works into Latin.

The speculum vaginæ gradually fell into disuse, however, to be again revived during the first half of

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* Traité des Hernies, etc., par Pierre Franco. p. 399. Lyons, 1561.
† Œuvres d'Amb. Paré. Paris, 1628.
‡ See the Armanentarium Chirurgicum of Seerig, published at Vienna.

the present century, as it had been revived during the times of Franco and Paré.

Récamier, who gave a new impulsion to the use of the speculum, preferred a simple conical tube of polished metal to the more complicated instruments of anterior date. Dupuytren modified Récamier's instrument by causing it to be made shorter and having a handle added to it, which addition was not generally considered an improvement.

Madame Boivin recognized the inconvenience attending the relative narrowness of the vulva orifice of the vagina, when it became necessary to dilate the upper part of this canal.* Her speculum, however, failed to obviate this inconvenience; and in dilating the superior portion of the vagina, the branches of the instrument were as equally expanded at the vulva as at that portion, and pressed painfully on those parts it was not intended or desirable to dilate too much. Jobert conceived the idea of dilating the uterine portion of the vagina by means of a speculum, which should correspondingly diminish in calibre, at the vulva, as the distal extremity of the instrument expanded. His speculum was composed of two segments of an articulated cylinder hinged together not very far from their uterine extremity. Ricord modified the speculum of Jobert by causing the hinge to be placed near the vulva extremity, and by the addition of handles the manipulation of the instrument was made more convenient. The branches of this bivalve speculum dilated the vagina in its lateral portions, and

* See Article on Speculum, Dict. de Méd. en vol. xxx.

permitted of operations on either the anterior or posterior vaginal septum; and this instrument was, until the introduction of Sims's speculum, the one generally used in Europe for vesico-vaginal fistula, or for operations on the cervix uteri. Jobert's speculum has undergone various modifications by the addition of valves or other attachments, which, in some instances, have increased, and in others impaired its usefulness.

The names of many physicians, at present favorably known in the treatment of uterine diseases, are each associated with a speculum of peculiar shape. I am of the impression that each and all of these instruments have served very well in the hands of their originators; and have proved to be useful means of exploration with those who have acquired skill in their use. It is not my intention, neither my desire, to comment upon the relative merits of any of these instruments, but to express succinctly certain preferences in favor of the common round speculum as a usual means of exploration; which opinion I think justified; and, while I desire to uphold the usefulness of this simple and inexpensive instrument, I wish to be thought fully to appreciate the superior advantages of others where this is unsuitable. Moreover, having, in certain cases, experienced the want of a suitable instrument for the proper exploration of the female organs of generation, I have viewed with pleasure all attempts to attain this object. The glass cylindrical speculum, bevelled off at the inner end, coated with tin foil, and covered with india rubber, is a very portable and simple instrument, of facile use; and which, I believe, will meet the most frequent neces-

sities of the general practitioner. Exceptionally, however, this speculum cannot serve the purposes of exploration, or be used for the most important surgical operations practised in the vagina and uterus. But such operations do not form the major part of the treatment of womb diseases; and when complex operative procedures on the utero-vaginal region are required, other specula must supersede the cylindrical speculum. Difficult operations, on this region, are generally assigned to the dextrous hands of those possessing a special acquaintance with the subject; and, as the result shows, each one seems to have his particular speculum. The cylindrical speculum, as is well known, may be introduced very conveniently with the patient on the left side or on the back, and if required, under cover. The bevelled edge of the instrument is introduced between the labia, and parallel to them; the perineal commissure is gently pressed by a slightly rotating movement, and the vaginal sphincter being passed, the speculum enters without difficulty. The cervix, if not abnormally enlarged or too much displaced, will enter the field of the instrument. Sometimes this will not occur, but the amplitude of the upper part of the vagina may permit, without injury to the cervix, a slight rotating movement of the instrument, which will end in discovering the cervix, either ante or retro-flexed. The end of Sims's flexible metallic uterine probe, hooked into the cervical canal, may, without too much pain, cause the cervix to enter the speculum. If the cervix is too much displaced, the sound cannot be introduced through the speculum, but should be passed along the

finger, previously inserted into the vagina. The difficulty, of which some speak, of not being able to use the flexible sound through the cylindrical speculum, I have been usually fortunate enough to obviate by first shaping the sound to correspond to such a curve as a previous digital and bi-manual exploration may have discovered, at the first examination of the patient, to be necessary. The end of the sound, being passed through the speculum and inserted into the cervical canal, a certain lateral movement is imparted to the speculum if the patient be on the side, and a depressing or elevating movement if on the back; and these movements should correspond to those of the sound held with the right hand. This kind of manipulation, with the proper curve to the probe, will frequently be sufficient to permit of a thorough examination of the uterine cavity by means of this instrument. When this cannot be done, the patient placed on her side or on her breast and knees, Sims's speculum being introduced and properly held, the cervix may be dragged down with a slender tenaculum and the uterine probe introduced. Recently, at the Northwestern Dispensary, with the Women's Department of which I am connected, not having Sims's speculum with me, I made use of an old disused tongue depressor to examine and manipulate a prolapsed and partially but badly inverted uterus. The house physician, Dr. Clark, kindly held the instrument for me while I attempted ineffectually to reduce the inversion, which was firm and immovable, resisting the pressure of the index fingers. I could not have desired a better view of the parts than I obtained

with this improvised speculum. No other instrument could have enabled me better to manipulate; but I was compelled to desist, and inserting into the vagina a large cotton plug, saturated with glycerine, sent the patient home to remain quietly in bed, to wait the good results of rest, position, and the soothing effects of the glycerine, to reduce the congestion of the parts. The cylindrical or conical speculum is very convenient for making various applications to the cervix, or to the interior of the cervical canal; for leeching the neck of the womb, or for local depletion by scarifications of this part. Sponge tents may with facility be inserted into the canal of the cervix through this speculum; which may also be advantageously used for fastening a pair of spring forceps to the protruding end of the tent previous to its removal and after the withdrawal of the speculum.

By scarifications of the cervix, made through the cylindrical speculum, from half an ounce to an ounce of blood may be withdrawn and removed by means of the well known long-pipe rubber syringe. If desired, the flow of blood may be still further increased by injecting warm water into the speculum.

In conclusion, it is proper to add, that this instrument can nearly always be conveniently held by the patient, thus dispensing with an aid.

Reviews and Bibliographical Notices.

ART. I.—*Stellwag on the Eye.* Translated by C. E. HACKLEY, M.D., Surgeon to New York Eye and Ear Infirmary, etc., and D. B. ST. J. ROOSA, M.D., Clinical Professor of the Diseases of the Eye and Ear in the University of New York, etc. New York: William Wood & Co. 1868. 8vo., pp. 774.

WE have just received the translation by Drs. Hackley and Roosa of Stellwag's remarkable treatise on the diseases of the Eye. The book is a large octavo of 750 closely printed pages, illustrated by ninety-six wood engravings, and eighteen chromo-lithographs; the latter identical with those which appear in the third German edition, and marked by the exquisite care with which such illustrations are prepared abroad. To do justice to such a book would use more time than we can now command. The general medical profession has watched with inquisitive interest the growth of modern ophthalmology, and followed, through reported cases and monograms produced in German, English, and French, the labors of those who have striven to place the subject upon a broad and scientific basis. The greatest advances in the science have been since the discovery of the Ophthalmoscope, and the field of most active and adventurous labor has been in Germany. In saying this we do not shut our eyes to the work of our English brethren, who have been great originators, and also quick in imitating and improving continental methods, and testing every procedure which promised success in the ordeal of a most extensive and varied clinical practice. The results of the labors of Graefe, Helmholz, and Donders make a grand epoch in the history of medicine; and we may say, without running the risk of contradiction, that no department of the healing art has so nearly approached the accuracy of an exact science as that of Ophthalmology. The influence, moreover, of this growing ex-

actness has been most salutary upon the general course of medical investigation, so that ingenuity and research have everywhere been stimulated in the production of new methods of clinical exploration. In attempting to review such a comprehensive treatise as that of Stellwag, one is embarrassed by the very copiousness of the subject. The names of those who have labored with such industry and success to advance our knowledge of the anatomy, physiology, optics, diseases, and therapeutics of the eye, crowd upon us, so that even a cursory sketch of the bibliography of ophthalmology would exhaust our space, fatigue the reader, and lead us far from the purpose of this review. Since the days of Mackenzie's book, no systematic treatise on the eye has appeared in English. Indeed, so rapid has been the addition of fact to fact, and the foreshadowing of new truths about to be born, that there has been a confessed reluctance on the part of competent writers to commit themselves to a book which, although it might enter the press laden with the latest products of thought and experience, would certainly emerge from the same behind the day in some very essential particulars. The course of Stellwag has furnished an illustration of the cited embarassment, he having pushed his book very rapidly through three comparatively small editions, so as to keep abreast of new views and practice. The translation by Drs. Hackley and Roosa from Stellwag's last edition, makes its appearance with commendable alacrity, and places the American profession under real obligations. The question is constantly asked by the English-reading students of medicine, What book on the eye can we get which will give us the latest information in a scientific, and at the same time compendious and practical form, so that we may meet the responsibilities of ordinary ophthalmic practice? The forced reply has been, There is no such book. You may study Donders in the Sydenham Society's translation, for the diseases of accommodation; you may read Zehender, by Carter, for a knowledge of the ophthalmoscope; you may go

through the Journals, or reports of hospitals or societies, for the latest methods of practice; you may purchase a score of big and little brochures professing to give, with more or less truth, the best compendium ; but nowhere in English can you find such a book as the present state of the science justifies, or your necessities demand. The appearance of Stellwag supplies this long-felt desideratum in a most admirable manner. It should be in the hands of every medical man ; and no one can safely practice ophthalmology who does not regard the subject from a standpoint at least as high as Stellwag occupies. He divides the subject matter of his treatise into four parts. The first part treats of inflammation of the eye and its consequences, beginning with some general remarks of rather an extended character ; then taking up in succession keratitis in its numerous forms, inflammation of the vitreous humor, inflammation of the optic nerve, and so through the varieties of neuro-retinal affections. He then treats of iritis, and diseases of the choroid and ciliary body, including glaucoma; then of the many forms of scleral and conjunctival disease ; next of affections of the eye-lids and lachrymal organs ; and closes Part First with a section on inflammation of the orbit. Part Second is devoted to "*Tumors*," for which "Virchow's work has been used as the basis." Part Third presents an extended historical, critical, and practical compendium of the present state of opinion and practice in cataract. Part Fourth is devoted to functional diseases, and focuses for the general practitioner the light which modern research has thrown upon the heretofore unknown subject of Asthenopia. This part of the book is a rich mine for the honest and studious medical man, and will tend to dispel the dense fog which has enshrouded the term Amaurosis in the minds of the great mass of practitioners. It will send many a poor fellow to cure his "Amaurosis" at the optician's, who otherwise might have dragged out a weary existence under a course of mercury, iodide of potassium, or blisters. An appendix closes the volume, in which some

matters relating to the ophthalmoscope have been added, and a set of test type, all tending to render the book more valuable to the general practitioner.

ART. II.—*A Practical Treatise upon Eczema, including its Lichenous and Impetiginous Forms.* By DR. M'CALL ANDERSON. Second edition. London: John Churchill & Sons. 1868. 8vo., pp. 180.

WE have read, with pleasure and with profit, every page of the valuable monograph before us, and heartily recommend it to those who may desire to refresh or extend their knowledge of the subject. It is no mere compilation, or abstract, but bears the strong impress of the author's individuality, as well as of that tendency to dogmatic assertion which makes the self-reliant, well-informed, enthusiastic, and probably youthful author. We have no knowledge of Dr. Anderson's age, and if our surmise be incorrect, it is no less certain that time has not toned down those qualities which distinguish the happy days of hot endeavor.

We hope that those who have not yet studied eczema, the most frequent and the most protean of the diseases of the skin, will commence with this little volume. The clear graphic description of the elementary lesions, though perplexing at first, will save a world of clinical trouble for the future. Under these banners all the straggling ragged types of local varieties fall readily into line, and the student will have no difficulty in assigning to them their proper rank and places. Eczema erythematosum, squamosum, vesiculosum, rubrum seu madidans, pustulosum seu impetigo, papulosum seu lichen, rimosum, acutum, chronicum, siccum, universale, nummulare, sclerosum, verrucosum, unisquamosum, solare, mercuriale, erythematodes, capitis, pilare faciei, labiorum, tarsi, narium, aurium, meatus, articulorum, manuum et pedum, palmare et plantare, crurale, unguium, genitalium, ani, mammæ, umbilici, intertrigo,

all take their places in their ineffectual struggle against the positive advance of our therapeutics. It will be a solid comfort, however, to the beginner to learn that Dr. Anderson rejects the eczema marginatum, and passes it over as a variety of tinea tonsurans.

"Those who study eczema carefully at the bedside, without bias, will be forced," says Dr. Anderson, "to the following conclusions:

"1. That the elementary lesion of eczema is not of necessity a vesicle. 2. That it may be an erythematous state of the skin, a vesicle, a papule, a pustule, or a fissure. 3. That impetigo and lichen are merely varieties of eczema, in which the elementary lesions are respectively pustules and papules. 4. That cases of eczema are often met with in which an erythematous state of the skin, vesicles, pustules, papules, and fissures are met with in a combined form." And when the eruption is at its height the following symptoms "are almost always present in a greater or less degree. 1. Infiltration of the skin. 2. Exudation on the surface of the skin. 3. Formation of crusts. 4. Itching or burning heat."

How true is the following criticism of the clinical behavior of the man who demands vesicles for his diagnosis of eczema. "When a Willanist," (of the school of Willan,) "deeply imbued with the belief that eczema must exhibit vesicles, has a case under his notice, it is quite painful to observe how he strains his eyes in quest of them, when perhaps none are to be found, or how pleased he is if, on a surface which we shall say is covered with innumerable papules, one small vesicle is at last detected, or even a papule, translucent on its summit, so as to give it the air of a vesicle!"

Dr. Anderson dissents from Tilbury Fox's belief in a contagious variety of eczema, believing that syphilitic, or parasitic disease, must complicate such cases.

The well known complication of eczema with scabies is discussed in its relations to diagnosis, and there is every reason to believe that these mistakes are perpet-

ually recurring. The reviewer has been informed of instances in which soldiers returning home after our civil war have spread the disease in localities where its true nature has been tardily appreciated; and in his private practice he has recently treated cases of scabies introduced very innocently by visitors into families whose style of living would seem to place them beyond the risk of such accidents. A chief steward of a leading trans-atlantic line of steamers, consulted him for a disease of the skin which had interfered with his duties to a certain extent for one or two trips, but which acknowledged the little acarus as its source. In cases of doubt it is better to adopt the treatment for this parasite. Time will soon tell whether the supposition be correct.

Cases of psoriasis in the summer season, or after the thorough use of baths, or ointments, present appearances at first sight not dissimilar, but Dr. Anderson points out very clearly that in addition to the absence of humidity "the tint of the patch is usually brighter, and the itching, as a rule, more marked, while the eruption has no tendency to attack the extensor, but on the contrary, the flexor surfaces of the elbows and knees."

"A great deal of nonsense," says Dr. A., "has been written about the danger of suddenly 'driving-in' (as the expression goes) a severe or chronic eruption such as eczema. . . . It is to be feared that the mistake is in great measure to be traced to the unmerited neglect of the study of skin diseases by the medical profession, the resulting inability to grapple with them successfully, and the consequent temptation to evade the difficulty by the plausible excuse that danger might arise from any attempt to cure them quickly by driving them inward. For while I have treated thousands of cases of eczema, many of them covering the greater portion of the skin, I have rarely witnessed any bad effect even from the rapid removal of the disease."

Although our experience has not been at all equal to that of Dr. Anderson, we most heartily endorse the

results of his observation; but we consider that he has overlooked a material cause for the popular and professional belief in the danger described. Children are perhaps the ones most liable to these diseases, and certainly the ones most liable to this risk. It may happen in them that the languid circulation which precedes or attends the development of fatal cachexiæ, or the derivation from the skin which attends internal congestions, result in the fading of a prominent eruption. Moreover, this often happens before yet the diagnosis of the grave disease has been established, and thus by a faulty train of reasoning, our old friends the *post* and *propter hoc* mislead the public and many of the profession. An interesting case occurs to us at the moment, to which we were called in consultation. The little baby had eczema evidently, but was pallid and delicate looking. As the only child, and one on whom many interests centred, we postponed prescribing for a while, until the constitution had been more carefully studied; but within two days the eruption began to fade spontaneously, and the evidences of fatal meningitis (doubtless tubercular) appeared.

There is, however, much to be said on both sides of the question, but still the decision must rest on the gathering statistics which demonstrate the truth of Dr. Anderson's convictions.

Such convictions lend an increased interest to the treatment of the disease, in which our author displays the vigor that might be anticipated from the tone of his mind.

While recognizing the superiority of local over constitutional treatment, he attaches great value to the latter, and pushes his remedies heroically. Herein we see a risk that his advice may be followed by injurious results and unnecessary medication by so many practitioners. For our own part we have nearly discarded the use of those internal remedies which do not improve the tone and standard of digestion and assimilation, and we believe that the following remarks in

relation to arsenic are a blemish on the book. "I do not think it necessary to stop it (arsenic) if slight irritation of the eyes or puffiness of the face is induced, but if these symptoms are at all aggravated, and especially if they are accompanied by pains in the stomach and head, anorexia, or nausea, the dose should be diminished, or in some cases omitted for a few days. On no account, however, should its administration be omitted altogether because these physiological effects are produced." "In the case of infants at the breast it is advisable to administer the arsenic to the mother."

Local remedies are considered so fully, so admirably, and so concisely, and so many formulæ are given, that we must refer the reader to the work itself for this information, merely remarking on the fondness of the author for blistering, and for the use of solutions of the potassa fusa. We extract the following prescription for a soothing application, as the author distinguishes it by the designation of "a most elegant formula."

R pulv. camphoræ, gr.ij; pulv. zinci oxidi, Oss; glycerinæ, adipis benzoati, *aa*, Oj; cochinillini, gr.j; olei rosæ, m.ij. M. S. *Stir the mixture before using it.* Smear a thin layer over the inflamed part twice or thrice daily.

The publishers have done their part of the work in a way which leaves absolutely nothing to be desired; the paper, print, heading, and index being each and all admirable and complete; and we heartily wish Dr. Anderson a continuance of the energy and close application which have already procured for him such a distinguished rank among dermatologists.

The volume is appropriately inscribed to Hebra, whose teachings so worthily influence the practice of our time, and have done so much for Dr. Anderson.

ART. III.—*The Principles and Practice of Laryngoscopy and Rhinoscopy in Diseases of the Throat and Nasal Passages. Designed for the use of Physicians and Students. With Fifty-nine Engravings on Wood.* By ANTOINE RUPPANER, M.D., A.M., etc. New York. A. Simpson & Co. 1868. 8vo., pp. 153.

THE author rightly remarks in his Preface that "the value of the Laryngoscope and [the] Rhinoscope in the diagnosis and treatment of disease beginning to be daily more appreciated by the profession, it is desirable that the principles and application of the same should come as speedily as possible into general use," (p. vii.) We know of no manual in the English language on the subject which is better calculated to further these ends than Dr. Ruppaner's very excellent little work. To a thorough practical familiarity with laryngoscopy and rhinoscopy, and the treatment of the disorders of the upper air passages, derived not only from the personal instructions of Türck and of Tobold, but from large individual experience, he adds an ample acquaintance with the literature of the subject. From the fullness of his knowledge, the author has been able to prepare a condensed guide of the essentials for conducting properly physical examinations of the throat and posterior nares. He has done more; the chapters on the Application of Remedies to the Larynx aided by the Laryngoscope; the remedies used, and how applied, with the operative proceedings within the larynx, including the modes for the removal of morbid growths from the larynx, and the application of galvanism to the larynx, are excellent, instructive, and judicious.

Dr. Ruppaner vindicates Türck's claim to priority in the full and successful practical application of the mirror to the diagnosis of the diseases of the larynx. All previous attempts had been partial and incomplete. From Türck's mirror, laryngoscopy became a possible, and, finally, a recognized means of diagnosis. The mer-

its of the rival claimant, Czermac, are not overlooked. He first rendered artificial light available; he reduced the art to a system; he, from the very first, insisted and laid stress upon the importance of the laryngoscope in the diagnosis and treatment of laryngeal diseases, and illustrated the correctness of his sayings by practical results in practice; and, finally, to him we are indebted for the art of rhinoscopy.

One of the most useful features of the work is the number, appropriateness, and excellence of the wood engravings. Many of these have been taken from Türck's great work on "the Diseases of the Larynx and Trachea," and others, original and selected, illustrate apparatus, instruments, and the manner of using them.

We have but little doubt that this work will soon reach a second edition, in which we may expect to find some blemishes of style amended, and typographical errors corrected.

ART. IV.—*The Culture Demanded by Modern Life. A Series of Addresses and Arguments on the Claims of Scientific Education.* By Professors Tyndall, Henfrey, Huxley, Paget, Whewell, Faraday, Liebig, Draper, De Morgan, Drs. Barnard, Hodgson, Carpenter, Hooker, Acland, Forbes, Herbert Spencer, Sir John Herschel, Sir Charles Lyell, Dr. Seguin, Wm. Stuart Mill, etc. With an Introduction on Mental Discipline in Education, by E. L. YOUMANS. New York: D. Appleton & Co. 1867. 12mo., pp. 473.

No liberally educated man, at the present day, can fail to be interested in the revolution of opinion that is now taking place regarding the estimate to be placed upon the value of classical studies, and their adaptability to the demands of modern life. We have found out, by dint of severe and too often costly experience, that these studies come far short of fitting men to grapple with the great questions which advanced civilization is

constantly forcing upon us; and we see the ablest minds now turning their attention to the utilitarian studies, and systematically advocating their pursuit. More than this, as we had occasion to remark some few months since, in a short notice of Dr. Bigelow's "Modern Enquiries," the "men who are now leading the world in its progress of civilization, and are controlling the intellect and thought of the masses of the people, are investigators in the natural sciences." It is no wonder then that so marked a reaction against the old system of education should have at length come about; but we should be cautious, lest in our zeal for remedying an evident deficiency, we should go to the opposite extreme, and lose sight of the well-founded claims of the classics to recognition; for these studies are unquestionably of great service, especially in the training of the student for certain of the so-called liberal professions, and must always remain so.

Dr. Youmans, who has been an attentive observer of this conflict of opinion, as well as an earnest advocate for the more careful training of students in scientific studies, has been led to the compilation of this book, with the view of placing within reach of the American reader the arguments of some of the most celebrated scholars of the day, on the general subject in question. He has himself contributed two important essays "On Mental Discipline in Education," and "On the Scientific Study of Human Nature," which were necessary to the completeness of the argument, as these subjects were nowhere else discussed. The names of the authors of the various essays are sufficient in themselves to attract attention to the volume, independently of the interest attaching to the subject matter. Take for instance the first four essays, Prof. Tyndall, On the Study of Physics; Henfrey, On the Study of Botany; Huxley, On the Study of Zoology; and Paget, On the Study of Physiology. Each essay is in truth an elaborate argument, showing not only the importance, but the necessity for the rising generation to be instruct-

ed in these studies, if they would be equal to the educational demands of modern life. Now, group all these with the other essays in the book, and we have combined a comprehensive survey of the whole question, which, from the acknowledged superiority of the individual authors, will probably carry a more thorough conviction than would the work of any single mind, no matter how able.

The book is invaluable to all who take any interest in the great educational problems of the day, and physicians especially, it seems to us, should make themselves competent counsellors in this subject, as the very questions that daily come up for decision naturally fall within the limits of their own studies. We congratulate Dr. Youmans on the good work he has accomplished in bringing together and rendering accessible these valuable papers; and we would especially urge upon our readers the importance of acquainting themselves thoroughly with the various bearings of the subject at issue.

ART. V.— *Annual Abstract of Therapeutics, Materia Medica, Pharmacy, and Toxicology for* 1867, *followed by an original Memoir on Gout, Gravel, and Urinary Calculi.* By A. BOUCHARDAT. Translated and Edited by M. J. DEROSSET, M.D. Philadelphia: Lindsay & Blakiston. 1868. 12mo., pp. 314.

WE are glad at last to see the *Annuaire Therapeutique* done into English, and placed within the reach of the profession in this country. As most of our readers are aware, this little manual is an abstract of the various improvements and additions to the branch of therapeutics made during each year. Of course, to present anything like a fair resumé of what is done each year, implies a wide research, and a careful discrimination in the selection of materials; for, without the first, the book would not fairly represent the advance in therapeutics, and a neglect of the second would swell the

limits of the volume to a preposterous degree, both in quality and quantity. The name of the editor is a guarantee that both these requisites have been well provided for; and while the selections, as a rule, are mostly devoted to the practical portion of therapeutics, or the application of medicines to the cure of disease, still, where scientific experiments have embodied points of clinical value, or where they furnish a basis from which practical applications may be induced, they have been incorporated in the work.

We have endeavored, in the Reports of Materia Medica and Therapeutics, in this Journal, to follow out pretty much this same plan; and we find in this issue of the Abstract many things that have already appeared in our pages. But the convenience of a single reference book will induce many of our readers to procure the volume for their own use, and especially to those who have not the original at hand do we commend it.

The translator's work appears to be well done, and we hope to see him so encouraged and sustained in this useful enterprise that he will continue it yearly.

ART. VI.—*The Indigestions or Diseases of the Digestive Organs Functionally Treated.* By THOS. KING CHAMBERS, M.D., Honorary Physician to His Royal Highness the Prince of Wales, Consulting Physician and Lecturer on the Practice of Medicine at St. Mary's Hospital, etc. Philadelphia: Henry C. Lea. 1867. 8vo., pp. 287.

THE fundamental principle that underlies Dr. Chambers's teachings, is that all disease is for the physician essentially a deficiency of life; all treatment should, therefore, be directed with the view of supplying this deficiency, or to the renewal of life, as he himself calls it. On this theory, advanced in his clinical lectures which he put out under the identical title of "Renewal of Life," and to which we have had occasion previously

to allude, he now bases this second publication, and clings to it with all the boldness which he has previously displayed in defending his positions, and with a consistency truly refreshing in times when one's private opinion is only too apt to be a reflex of the prevailing popular view on any given subject.

The volume before us grew out of a smaller publication by Dr. C., which has for a long time been out of print, but which he has now enlarged and altered to such an extent, that it is essentially a new book, and is presented under a new title; and, as this title indicates, the subject is treated functionally, while in the former work it was viewed from an anatomical point of view. The cases which are introduced most profusely by way of illustration, are taken from the records of St. Mary's Hospital and from the author's private practice. His method of making records of his cases is novel, and commends itself to those whose business is chiefly confined to office practice. He says, "I make it a rule, to which the exceptions need be very few, to write all prescriptions and papers of advice in a copying book, which makes a duplicate of them by means of transfer paper; and at the back of this transcript I write, usually with the patient before me, his symptoms and history, at least so far as to explain my reasons for the advice, before I go on to the next page. The periodical indexing of these sheets is an easy job for an hour of weariness, and the whole time consumed is so crumbled up that it is never missed, and neither business nor amusement feel themselves robbed."

Some such short-hand method as this, if adopted by all, would render available a large and valuable amount of experience that now is wholly lost to the profession, for few are so rash as to attempt writing for the benefit of others without carefully preserved notes.

But to return. Chap. I. The introduction is devoted to a brief exposition of Dr. C.'s views of the essential nature of disease, to which we have before referred. On this point we are thoroughly in conso-

nance with him, although well aware it is antagonistic to most of the teachings of the day. We have also a portion of the chapter given up to a consideration of the importance of the digestive viscera in the cure of disease, and hence, and primarily, the double necessity of endeavoring to restore to healthy action the functions of these organs when they have become deranged. Many of these derangements, and certainly the most prominent of them all, indigestion, are chronic, by which Dr. C. means to imply that their "path is straight on from bad to worse," "while the tendency of acute disease is to progress in a circle toward the recovery of health." Therefore interference by way of treatment, medical or otherwise, is especially necessary in this class of cases, for if left to themselves, the tendency is to grow worse. No one then from the obscurity or difficulty of a case should neglect a careful investigation into its causes, or should conduct the treatment on general principles merely, and without special understanding of its various bearings. A few pages on nomenclature close this chapter. In health, digestion is *quick*, *complete*, and *easy*, in ill health, it is impaired in one or more of these qualities, and becomes *slow*, *defective*, and *painful*. Now the prodigiously learned terms *Bradypepsia*, *Apepsia*, and *Dyspepsia*, may be applied to these conditions, but the plain English will answer every purpose, and Dr. C. generally adopts them.

A very practical division of causes of indigestion is derived from the classes of food, i. e., (1) Starchy and saccharine. (2) Albumenoid. (3) Fatty. (4) Watery, which are especially undigested. Of course in each case, this is to be learned partly from the patient and partly from observation of the changes which take place in the ingested materials, and on this knowledge is at once based an important element of the treatment, viz., the dietetic. The consideration of these subjects, illustrated by appropriate cases, takes up the second chapter, which is crowded full of valuable and not otherwise easily attainable information and instruction.

Chap. III is devoted to a discussion of some of the habits of social life, which being voluntary, and yet persisted in by reasonable persons, usually from ignorance, are a prominent cause of indigestion. Were this chapter not conceived in the most earnest endeavor to seek out truth, and were not the professional aspect of the subject so judiciously brought out, we might look upon it as a slashing criticism on modern life, and unfold it to the reading public, learned and unlearned, with leave for each one to make the application to his or her own case. Look at the counts in the indictment. "Eating too little; eating too much; sedentary habits; tight lacing; sexual excesses; compression of the epigastrium by shoemakers; solitude; intellectual exertion; want of employment; abuse of purgatives; abuse of alcohol; tobacco; tea; opium." How many a suffering mortal may not trace his pet infirmity to one or the other of these causes? and yet, *sublatâ causâ tollitur effectus*, and you have made a great stride toward recovery. There is some comfort, too, in this chapter for those of us who must plead guilty to its accusations, in the fact that while dealing with our shortcomings or excesses so sharply and severely, it is done so genteelly and elegantly, that, on the whole, we feel rather pleased at the castigation. But in all sincerity we look upon this chapter as a most valuable guide to physicians, and warning to patients concerning transgressions against the established physiological conduct of life. The advice as to medicinal treatment proper, is also most serviceable. It should be read by every medical man in the country, and he should read his lessons to his patients from out its pages. We only regret that we have no room for a more thorough analysis of its contents.

We have already so far overstepped our limits that we can only refer to the remaining chapters, wherein are discussed single symptoms, or groups of symptoms, which are indicative of some derangement of the function of digestion. These are "abdominal pains,"

"vomiting," "flatulence," "diarrhœa," "constipation," and "costiveness." The closing chapter treats of the "nervous diseases connected with indigestion," wherein sensibly enough the author comes to the conclusion that they are rarely curable by means which act directly on the nervous system. The function of digestion must first be set aright.

Dr. Chambers's love for quaintness of expression and originality occasionally betrays him into open violations of the Queen's English, that are inexcusable in one whom we know to be so profound a scholar. There is a charm, however, about his writings which never fails to secure the attention of the reader, and which invests otherwise dull subjects with the most attractive dress, and we are sure our readers will be both profitably and pleasantly employed in the perusal of this book, which we commend to them with all sincerity.

ART. VII.—*Chemistry*. By WILLIAM THOMAS BRANDE, D.C.L., F.R.S.L., etc., and ALFRED SWAINE TAYLOR, M.D., F.R.S., etc., Professor of Chemistry and Medical Jurisprudence in Guy's Hospital. Second American Edition, thoroughly revised. Philadelphia: Henry C. Lea. 1867. 8vo., pp. 764.

PROFESSOR BRANDE'S "Manual of Chemistry," which acquired for the author so distinguished a reputation, increased in size with successive editions until in its encyclopædic proportions it had quite gone beyond the necessities of students; and this work is the result of the combined labors of the two authors to furnish within the compass of a single volume, a treatise that, on the one hand, should be sufficiently complete for the every-day wants of the student and the practitioner, and, on the other, should avoid the unsatisfactory meagreness of the hand books which so often are a hinderance to knowledge.

In consequence of the death of Professor Brande,

the preparation of the second edition of the well-known work has devolved entirely upon Dr. Taylor. No change has been made in the plan of the work, but the whole has undergone a careful revision, and numerous additions have been made in all parts of the volume. The ordinary notation, based on the equivalent or combining weights of bodies, which was adopted in the first, has been retained in this edition. This is wise, for the new methods of notation must be considered as still on their trial; and the strongest advocates of many of them, in recent editions of their books, have found it desirable to abandon them for old and intelligible systems. This fact is significant, for these new systems, in many instances, were devised by those very teachers who now lay them aside. For the student in this country, the old method is certainly the best; for it is the method by which he is taught his chemical nomenclature and notation, and the confusion arising from the introduction of new methods would only serve to make unintelligible his study.

The recognized value of this treatise, and its reputation both here and abroad, render it unnecessary for us to more than call attention to this new edition, which the American publisher has brought out with great care and accuracy; the supervision of the work, as it passed through the press, being entrusted to a competent chemist.

ART. VIII.—*The Treatment of Diseases of the Throat and Lungs by Inhalations.* By DR. EMIL SIEGLE. Translated from the German by S. NICKLES, M.D. Cincinnati: Max Wocher. 1868. 12mo., pp. 136.

BUT few months have elapsed since the first German edition of Dr. Siegle's work on inhalations was published, and a second edition is already demanded. After a careful perusal of this book, we are free to admit that it is by far the most compact, practical, and read-

able treatise, on the subject of inhalations, with which we are acquainted. We say compact treatise, for it would be unfair to compare it with such works as those of Waldenberg and Lewin.

The assertions of the author are based upon carefully conducted experiments, sustained by corroborative evidence of other observers. The chapters on Croupous Inflammation of the Larynx, Œdema of the Glottis, Whooping-Cough, Tuberculosis of the Lungs, and Hæmorrhage, deserve especial attention.

With the exception of two typographical errors, on pages 39 and 52, the execution of the work reflects credit upon the translator and publisher.

ART. IX.—*Inhalation: its Therapeutics and Practice. A Treatise on the Inhalation of Gases, Vapors, Nebulized Fluids, and Powders, including a description of the Apparatus employed and a Record of numerous Experiments, Physiological and Pathological; with Cases.* By J. SOLIS COHEN, M.D. Illustrated. Philadelphia: Lindsay & Blakiston. 1867. 12mo., pp. 305.

THE liberal title-page gives the scope of this work, with, perhaps, more copious promise than full performance. The author has pretty thoroughly, however, condensed the literature of the subject in this volume, though not always avoiding the crudities of enthusiastic therapeutic pioneers. He has embodied the experience of a number of physicians who have used atomized inhalations, and yet their actual remedial value can hardly be determined by the evidence brought forward. It is left very much in the state we mentioned in reviewing Dr. Beigel's manual in the fifth volume of this Journal, p. 147. More facts are needed, and nicer discrimination, or surer rules in the use of this agent, before it can become generally accepted, or popular with practitioners or patients. While much may be said in its favor, those who have large

experience with it, come more and more to learn the drawbacks inseparable from its constant employment, not the least of which are uncertainty, tediousness, and incompleteness of result. In many disorders of the air passages we have found the effect of atomized inhalations surprisingly and promptly happy, so far as immediate relief of symptoms, but with no ultimate curative results, and have been satisfied that much valuable time had been wasted by exclusive reliance upon them.

ART. X.—*Light; its Influence on Life and Health.* By FORBES WINSLOW, M.D., D.C.L. Oxon., (Hon.) New York: Moorhead, Simpson & Bond. 1868. pp. 200.

DR. WINSLOW has sought in this work "to demonstrate the inestimable value of light as an hygienic agent, and to analytically examine its physiological influence in the development of vital phenomena as manifested in the animal and vegetable kingdoms."

The work is divided into four parts. I. The Solar Beam. II. The Lunar Ray. III. On the alleged influence of the Moon on the Insane. IV. Hygiene of Light. There is also an appendix in which the American publishers "deem it proper" to show that a poem assumed by Dr. Winslow to have been written by Milton was written by Elizabeth Lloyd, a Quakeress of Philadelphia, while they also present a more correct version than Dr. Winslow's. In so doing it is evident that the work before us is not a mere reprint, but that the text has been carefully examined by competent men.

Dr. Winslow has probably compiled this volume from such facts as were noted in his commonplace book during many years of study, and which are at last woven together in the volume before us. The excerpta are interesting, valuable, and very suggestive, but the concentration of style, and condensation of

such varied topics detract from an interest which would have been awakened by more freedom of narrative. In accepting the book, however, as a classification of facts of interest illustrating the purpose of an inquiry into a subject of such vast importance to the physician, the philanthropist, the legislator, and the man of science, we welcome it as a valuable and admirable manual on the subject, which deserves a widely extended sale, and the careful study of all who are interested in the health of individuals and of masses of men. The adoration which the fire-worshiper pays to the noon-tide effulgence of that beneficent orb on which all animated nature depends, finds its intellectual and subordinated sympathy in the contemplation by the man of science of the wondrous influences of light. In direct ratio to the diffusion among the masses of these influences will squalor, disease, and blighted development fail to retain their relative rank.

In heartily commending, therefore, a work of such practical and suggestive character, we have pleasure in calling attention to the admirable style in which the enterprising publishers have presented it to the public.

ART. XI.—*The Historical Magazine, and Notes and Queries concerning the Antiquities, History, and Biography of America.* Morrisania, New York: Henry B. Dawson. January, 1868.

AMONG the most valuable of our non-professional exchanges we count the above magazine. It is a mine of useful information, and interesting to all scholars. Though generally speaking such a journal may not be considered very cheerful reading, the January number must be acknowledged to be unusually interesting and instructive. The article by the Hon. J. Hammond Trumbull, President of the Connecticut Historical Society, on the origin of the poem "M'Fingal," and

that by J. Carson Brevoort, President of the Long Island Historical Society, on Early Voyages from Europe to America, may be considered the star papers of this number, and will well repay perusal. Mr. Brevoort's article will be continued, and will go over the whole ground of this question, which was so long a puzzle to the historiographers, but which by recent investigations has been so fully cleared up.

Under the able management of the present editor, Mr. Dawson, this journal has largely improved, and has become an essential to all students of American history as well as to lovers of American literature.

ART. XII.—*Felix Von Niemeyer's Clinical Lectures on Pulmonary Phthisis.* Translated, by permission of the author, from the second German edition, by J. L. PARKE. New York: Moorhead, Simpson & Bond. 1868. 12mo., pp. 116.

IN the December number of the Journal we gave, through the kindness of Dr. Lusk, an abstract of Niemeyer's views on tuberculosis. That article has already attracted considerable attention from the medical press of the country, and we think the publishers have done well in now placing within the reach of the profession, a reliable translation of the entire monograph of Von Niemeyer. Hardly any subject in medicine is at present undergoing so much discussion as the question of tuberculosis, and the generally accepted views concerning it are quite in danger of being upset by the recent investigations of the German pathologists. Niemeyer's monograph is the most condensed view of this advance in the pathology of tuberculosis, and our readers will do well to possess themselves of it and master its contents. Mr. Parke's translation is a faithful reproduction of the original, and is rendered into easy flowing English.

Varia.

On the Preservation of Thin Sections of the Brain and Spinal Cord for Microscopical Examination.—"The *first* method, and that which I usually employ, is this: The tinted section is placed for four or five minutes in a watch-glass with pure spirits of wine, then removed on a scalpel—the superfluous spirit being got rid of by bringing the dependent edge of the section in contact with blotting-paper—and afterward placed on a drop of carbolic acid in the centre of a glass slip. In less than two minutes the section is rendered transparent; and when this is accomplished (having got rid of any excess of carbolic acid) I pour over it three or four drops of chloroform, in which the specimen is allowed to remain for two minutes. The superfluous chloroform is then poured off, while one or two drops of a solution of Canada balsam in chloroform are dropped over the specimen, and the covering-glass is then quickly applied. The whole process is therefore simple, and extends over ten minutes, even for moderately thick sections, instead of several hours. The *second* method is only a variation of the one just detailed; all the steps are the same, with the exception that the section is steeped for two minutes in ordinary commercial benzine, such as is used for cleaning gloves, instead of in chloroform. The results are equally good in either case, the employment of the benzine causing no sort of precipitate, since it mixes freely both with carbolic acid and with the Canada balsam and chloroform. The *third* method, also equally good, is somewhat different, since carbolic acid is not used at all. The section, after saturation in spirits of wine, as before, is transferred to a covered watch-glass containing a small quantity of pure sulphuric ether, in order to drive the alcohol out of the section. In this it is allowed to remain for a few minutes, then the sec-

tion is carefully removed, and, just as it is becoming dry from evaporation of the ether, it is placed upon a drop of chloroform on the glass slip. The chloroform almost immediately renders the section transparent, and then the solution of Canada balsam and the covering-glass are applied as before. The ether is rendered necessary in this method in order to dissolve the alcohol out of the section, because, after the final mounting, the presence of any of this latter fluid causes the precipitation of the Canada balsam, in a molecular condition, out of its solution in chloroform.

"The use of the solution of Canada balsam in chloroform makes the mounting of specimens in this medium perfectly simple; whereas to mount in Canada balsam in the ordinary way requires some amount of practice in order to avoid disappointing results. I have tried solutions of gum dammara and of gum mastic, in chloroform, in ether, and in benzine, respectively, but with none of these compounds could I obtain such satisfactory results as with a carefully prepared solution of Canada balsam in chloroform.

"If it be desirable that the specimens of brain or spinal cord should not be immersed in spirit or ether at all, with the view of better preserving all pathological appearances, this is now quite possible. The hardening should be brought about by the use of bichromate of potash and chromic acid solutions; and the thin sections must be rendered transparent either by the first or second methods just detailed, only, in each case, omitting the use of the spirits of wine altogether. Sections taken from water or any aqueous solution, and then partially dried, become transparent in about twenty or thirty minutes when allowed to soak in carbolic acid. In ordinary cases, where the spirits of wine is employed, it is only used in order to hasten the process.

"Although the methods I have just described are so satisfactory for mounting thin sections of brain and spinal cord, I cannot recommend them for sections of liver, kidney, or other organs; these, I think, are best

preserved in pure strong glycerine, or else in a mixture of three parts of glycerine to one of carbolic acid. This mixture I have been using for three or four months, and, so far, it seems to possess advantages over simple glycerine. The specimen does not become so transparent as when glycerine alone is used, and the details of delicate cellular structures have seemed to be preserved with more distinctness. It is necessary to immerse the sections in spirits of wine for a few minutes, however, before placing them in the mixture of glycerine and carbolic acid, since this last will not mix freely with water."—*Dr. H. C. Bastian, in Jour. Anat. and Phys., November*, 1867.

Preservation of Anatomical Specimens.—M. Van Vetter, of the Anatomical Museum of the University of Boulogne, preserves anatomical preparations in the following manner:

He takes seven parts of glycerine, one part of brown sugar, and half a part of nitre, and mixes them. The pieces that you wish to preserve, (which may be dissected or not,) are then plunged into the mixture. Parts that have been in the glycerine for some time are difficult to dissect. The pieces are macerated according to their size; thus a hand ought to remain in eight days. When after a little time the preparation is as hard as wood, he then suspends it in a dry and warm place. The glycerine disappears after a little, (*s' évapore,*) and perfect suppleness remains.

Anatomical specimens prepared in this manner, not only preserve their softness and their natural color, but the proper action and mechanism of the muscles may be demonstrated from such specimens.—*Journal de Pharmacie et de Chimie.*

Iodine and Carbolic Acid.—The *Journal des Connaissance Médicales* publishes a letter addressed to Dr. Caffe, on Dr. Percy Boulton's late discovery of the action of carbolic acid on iodine. "The inconvenience," says the writer, "attending the external application of

iodine and its preparations is so serious that physicians are often compelled to abandon a remedy the therapeutic efficacy of which is undoubted, nay almost unequalled in materia medica. The great objection to the external use of this remedy is, that it leaves marks both on the linen and on the skin. This is a sufficient motive for seeking some means of getting rid of this drawback, especially in the case of ladies. Dr. Percy Boulton's method consists in adding a few drops of phenic (carbolic) acid to the iodine solution to be employed. This addition renders iodine perfectly colorless, so that it may be applied with impunity. But this combination has another advantage. It appears from that practitioner's observations, which I can confirm, that, so administered, carbolate of iodine, which is the new substance in question, is not only one of the most powerful antiseptics we possess, but is intrinsically a more efficacious agent than iodine alone. I have used this compound under the form of injections, gargles, and lotions, in all cases in which iodine is prescribed. In sore throat, ozœna, abscess in the ear, etc., this preparation is a sovereign remedy; since, besides its disinfecting qualities, it modifies the mucous membrane, causes all local sensibility to disappear, and cures the patient much sooner than if either of the two agents were employed separately. The formula I employ is as follows: Compound tincture of iodine, 3 grms.; pure liquid carbolic acid, 6 drops; glycerine, 30 grms.; distilled water, 150 grms. The writer then enters more particularly into the properties of carbolic acid, but with which our readers are already acquainted. Its efficacy as a disinfecting agent in the case of sores is well known; it may be prescribed in all cases in which tar water is administered, and is, we trust, now pretty generally adopted for disinfecting purposes in hospitals and barracks.

A Simple Method of Protecting Water from the Action of Lead Pipe.—*Dingler's Polytechnisches Journal* publishes a simple method, brought forward by

Dr. Schwarz, of Breslau, for preventing the poisonous influence of lead pipes on water, by forming, on the inside surface of the pipes, an insoluble sulphuret of lead, which has proved so effective that, after simple distillation, no trace of lead can be detected in water which has remained in the pipes for a long time. The operation, which is a very simple one, consists in filling the pipes with a warm and concentrated solution of sulphuret of potassium or sodium; the solution is left in contact with the lead for about fifteen minutes. Commonly, a solution of sulphur in caustic soda will answer the purpose, and produce, practically, the same results. It is known that sulphuret of lead is the most insoluble of all compounds of lead, and nature itself presents an example which justifies the theory of Dr. Schwarz, since water extracted from the mine of Galena does not contain lead, a fact which has often occasioned surprise.

[The following curious extract we take from an English translation of Polydore Virgil's "De Rerum Inventoribus," recently printed by the Agathynian Club of this city. The Latin original was first published at Venice in 1499.]

THE INVENTOURS OF HERBS MEDICINABLE; WHAT REMEDIES MEN LEARNED OF BEASTS.

NATURE doubtlesse, the Mother and Governesse of all things, did create hearbs, as may appear by many examples, partly for the delectation, and partly for the Health and preservation of mens bodies. For *Xanthus* an Historiographer (as *Pliny* recordeth) telleth how a Dragon revived his young Faun that was slain, by the vertue of an hearb called Balin: and the Hechewall, if a wedge be driven into the hole of her nest (for she maketh her nest in the hole of a Tree, that she worketh with her beak) compelleth it to fall out, with an herb that she knoweth; and some of the Indians live onely by hearbs. *Appianus* writeth, that the *Parthians*, which

Anthony put to flight, constrained by extream famine, chanced to eat a certain hearb, whose nature was to make them that eat it, to forget all other things, and onely dig up stones, as if they would do some great matter; and after such extream travail died. Of such Medicines made with Herbs, *Chiron* son to *Saturnus*, and *Phillara* was the finder, and devised also salves for wounds, Sores, Biles, although some think it was *Apollo*, and some refer it to his son *Æsculapius*, whom *Chiron* brought up to the *Samothracians*. But I suppose they attributed the Invention of it to *Chiron*, because he found the Herb Century, wherewith he healed the wound that he had by *Hercules* shafts, falling on his foot, as he was handling of his weapons: Notwithstanding, *Celsus* saith that the Art of Physick is very ancient, but he maketh no mention of the Author of it, onely he saith, *Æsclepiades*, which was an excellent Physitian, did abolish the use of it forasmuch as it annoyed the stomack, and engendred evil humours. *Mercury* found the use of Moly: *Achilles*, Yarow, *Esculapius*, Panace; and sundry men found sundry hearbs, Medicines of Honey, *Sol*, the son of *Oceanus*, invented; and beasts taught men certain hearbs, necessary, for Medicines. As the Hart stricken with an Arrow, driveth it out with Dittany; and if he be stinged with a Spider he healeth himself with eating Pills, or a certain hearb named Cancer. Selandine, which is a soveraign hearb for the sight, was perceived by the Swallows, which healed the eyes of their young ones with it. The Snail or Torteise, ready to fight with the Serpent, armeth himself with Savery, or Marjoram. The Boar in his sicknesse, cureth himself with the Ivy. Of the water Horse in *Nylus*, men learned to let bloud: For when he is weak and distempered, he seeketh by the River side the sharpest Reedstalks, and striketh a Vein in his Leg against it, with great violence, and so easeth his body by such means: and when he hath done, he covereth the wound with the mud.

The Ibis, a bird much like the Stork of the same

Country, taught Physicians to Minister Glisters: For when she is full, she purgeth her self, with her crooked beak, at the Fundament. The Wesil in chasing the Serpent, preserveth her self with Rue, and the Stork with Organy. In *Greece*, *Orpheus*, *Museus*, *Dioscorides*; In *Rome*, *Marcus Cato*, *Pompeius Lenius*, wrote of the nature of Hearbs. *Pliny* thinketh that this Art was first received among the *Romans*.

THE NEW ANÆSTHETIC, BICHLORIDE OF METHYLENE.—Dr. Richardson claims for this substance the following characters:

1. It is an effective general anæsthetic, producing as deep insensibility as chloroform.
2. In action it is rather more rapid than chloroform, but to develop effects more of it is required, in the proportion of six parts to four.
3. It produces a less prolonged second degree of narcotism than other anæsthetics.
4. When its effects are fully developed, the narcotism is very prolonged, and is reproduced with great ease.
5. Its influence on the nervous centres is uniform, and it creates little if any disturbance or break of action between the respirating and circulating functions.
6. Its final escape from the organism is rapid, so that the symptoms of recovery are sudden.
7. In some cases it produces vomiting.
8. When it kills, it destroys by equally paralysing the respirating and circulating mechanisms.
9. It interferes less with the muscular irritability than perhaps any other anæsthetic.
10. It combines with ether and with chloroform in all proportions.

Dr. R. appends to his elaborate lecture descriptive of this agent the following account of its trial on the human subject. The whole paper is most valuable and interesting, but entirely too lengthy for transfer to our columns.

Since the lecture above written was delivered I have been enabled to test the action of the bichloride of methylene on the human adult subject in five long and severe operations. Four of these were cases of ovariotomy performed by Mr. Spencer Wells, and the period of narcotism in each case averaged from thirty-five to forty-five minutes. In all the cases, except one where Weiss's inhaler was used, the anæsthetic

was administered from a simple mouthpiece made of a layer of parchment paper stretched over a light frame of wood, and lined on the inner surface with lint. The quantity of bichloride of methylene used in each case averaged a little more than a fluidrachm each five minutes, two drachms being first used. In all the cases the administration has been safe, and the recovery from the effects of the narcotic good. I noticed specially, that in each case the transition from the first to the third degree of narcotism was very brief; that when the anæsthesia, which was complete in an average of five minutes, was well established, it was easily prolonged for six, and even seven minutes, without readministering the vapor, and when recovery began to shew itself, very brief readministration quickly reproduced the insensibility. In one case after the operation, the patient continued twenty-seven minutes in unbroken sleep, and then awoke with entire consciousness.

It happened that one of the ladies to whom I gave the anæsthetic had once been under chloroform, Dr. Snow having been the administrator. This lady was therefore able to compare the effects of the two agents, and she gave her verdict strongly in favor of the bichloride. She said it caused no sense of suffocation, no ringing sounds in the head, no nausea, and no after depressing effect whatever, as chloroform in her case did; but it allowed her to drop into sleep precisely as in natural sleep, and to wake with all her senses aroused as after natural sleep.

On the whole, the results of practice, in so far as they go, have fully realized my expectations. Only two adverse points, and those minor, occur to me. In one case—after operation for vesico-vaginal fistula—the patient, who recovered from the anæsthesia without any nausea, had, I learn, ten hours afterward, a bilious vomit. It would be unfair to put this against the anæsthetic, but the fact should be stated. In another case, the anæsthesia having been carried very deeply, the tongue of the patient was retracted into the throat, and after pulling it forward, there was a free secretion of saliva, followed by an eructation and about a dessertspoonful of fluid from the stomach. This might have been excited by the irritation communicated to the throat in pulling up the tongue, or it might have been from the anæsthetic. In all the cases the recovery from the anæsthetic was in every sense satisfactory.

It is already stated in the lecture that bichloride of methylene mixes with ether. I have tried this mixture in experiments as an anæsthetic, using equal parts of ether and bichloride. The compound anæsthetises quickly, and the action is characteristically modified. The ether materially shortens the duration of the insensibility, there is less freedom of respiration, and more excitement. On the whole, I do not at this moment see any advantage in the mixture over the simple bichloride. I leave the point open, however, for future study.

I leave the Bichloride of Methylene with the profession for its observation and experience. I have proved the agent, by experiment on the lower animals, to be a good general anæsthetic. I have inhaled it

myself with safety, and I have administered it to the human subject with success in the extremest operations for which general anæsthesia is demanded. Here, as an individual inquirer, I come back into the ranks and rejoin the rest of my brethren as an observer. Having no other ambition than that of being a Physician in the widest sense; having even a painful aversion to specialty, and having no desire to press my subject unduly, I have produced this lecture as a contribution to pure science, and nothing more; holding myself as free as any one else to condemn, improve, or approve, as future knowledge, framed and squared and fitted by wisdom, shall determine. When twenty thousand persons shall have slept away pain under the influence of "Chloromethyl," as Mr. Spencer Wells has tersely named the Bichloride of Methylene, and those of them who have slept too deeply shall be counted as fewer than ten, an advance over chloroform will have been proved, but not sooner, nor with less of that tribulation through which we must ever attain to the good that is great and persistently beneficent.—*Medical Times and Gazette.*

Deaths from Chloroform.—Although Richardson's new discovery may some day give chloroform the go-by, we may continue in the mean time to record the authentic accounts of cases of death which have taken place after the employment of this agent. M. Desprès recently related one of these to the Paris Society of Surgery. A dressmaker, aged 19, having been put, on July 24th, under chloroform for the removal of vegetations of the vulva without any ill consequence, was on August 14th placed in the horizontal position for the same purpose. Some chloroform was dropped on a compress so as to moisten it to the extent of a five-franc piece, when it was held at a distance of three centimetres from the patient's mouth and nostrils. In less than half a minute she began to struggle, and the inhalation was suspended, although the pulse and respiration still continued good. Quite suddenly, however, she passed her urine, her face became highly congested, and the respiration was arrested. Artificial respiration and the other usual means were tried, and although a few respiratory movements were excited at intervals, death nevertheless occurred. The chloroform employed was quite pure. At the autopsy considerable pulmonary and cerebral congestion was found, and the heart was flaccid and large, its fibres, examined by the microscope, exhibiting a pretty ad-

vanced degree of fatty degeneration. The blood was found to contain too large a proportion of white globules, and at the bronchial bifurcation there were three glands very much hypertrophied, the largest reaching the size of a sheep's kidney and the other two that of a walnut. To the first of these the pneumogastric nerve adhered.

M. Broca related to the Society another case which had occurred in his practice at the St. Antoine. Joseph B., aged 17, entered the hospital to have a tumor of the neck removed, which was supposed to be a deep-seated sebacean cyst adhering to the thyroidean membrane. On October 31, 1866, after the anterior surface of the tumor had been dissected, and the deep-seated part was about to be attacked, the patient, under the action of the chloroform, struggled and vociferated so violently that the operation had to be suspended awhile. When he had become calmer, M. Broca requested his assistants to hold him while he performed the little that required to be done, but so greatly had his strength become augmented that it was with great struggling only that the operation could be finished. An enormous vein now gave forth its blood from the lower part of the wound, and while this was about to be tied, the patient bounded up from the bed, and freed himself from the hands of the operator and his assistants. The hæmorrhage continued to increase, and after the attempts to tie the vessel had been several times defeated by the patient's violence, he was again put under the influence of chloroform. This vein, as large as a quill, was secured with some difficulty, owing to the fear of admitting the air; the patient breathed well and had a good pulse. The wound was about to be dressed, when, now several minutes after the inhalation of the chloroform had been suspended, the pupil having charge of the pulse declared that it had suddenly ceased to beat. Respiration still continued, but in a few instants it became slower, and then stopped. All the usual means were had recourse to, and, by gal-

vanism, a few inspirations were induced; but these could not be maintained, and death was found to be complete. M. Broca believed at first that this fatal result was due to the introduction of air into the large vein rather than to the action of the chloroform; but the autopsy convinced him that this interpretation would not hold, for neither the heart nor the divisions of the pulmonary artery contained frothy blood. Neither was there any coagulum in either of the cavities of the heart. After the patient's death it was learned that he was subject to fainting fits, and that one of these had occurred during the ten days prior to the operation. He was also of intemperate habits.—*Medical Times and Gazette.*

Another Death from Chloroform.—Deaths from chloroform are now getting to be so common that it requires a faithful chronicler to keep track of them. The present case occurred (so says the Liverpool Post) at the Northern Hospital, Liverpool, on the 11th of September. The operation to be performed was that of straightening an anchylosed knee, the result of a fracture received some time previously. The junior house surgeon (Mr. Trubshaw) administered chloroform by means of Skinner's inhaler, using about four or five drachms, and thinking that the deceased would not inhale more than half that quantity. Deceased exhibited alarming symptoms toward the close of the operation, and artificial means were employed to sustain respiration, but he expired shortly afterward. The chloroform, it appeared from the evidence, was carefully administered, and every precaution used to prevent misadventure. A post-mortem examination of the body was made by Dr. Wollaston, senior house-surgeon at the hospital, and his opinion was that death resulted from syncope induced by chloroform. He added that the medical gentlemen present at the operation were satisfied with the manner in which the chloroform had been administered. Verdict, "Died from misadventure, from the administration of chloroform,

during an operation." The jury added that no blame was attachable to any of the medical gentlemen, and that the chloroform had been administered with caution. The patient was fifteen years of age.—*New York Medical Record.*

Still another Death from Chloroform.—Mr. Beaumont, surgeon to the Toronto General Hospital, Canada, reports (Medical Times and Gazette, July 27, 1867,) a case of death from chloroform in a patient on whom he was about to commence the operation of ligation of the external iliac artery for traumatic femoral aneurism. He says: "I was on the point of commencing the operation, the patient being insensible from chloroform, when his pulse at the wrist suddenly became imperceptible, respiration feeble, and the face purplish. I dragged the tongue forward with Liston's forceps; cold water was dashed on the face, ammonia applied to the nostrils, and electricity and artificial respiration were employed, but all without avail. The heart's action seemed to have stopped before respiration had entirely ceased. Chloroform had been administered carefully by one of my colleagues, who dropped it on a napkin placed over the patient's mouth and nostrils; and there was no sign of unusual danger until the moment when his pulse began suddenly to beat feebly, and his lips to become purplish, a few minutes after which he seemed past recovery. At a post-mortem examination made twenty-four hours after death, the blood in all the large veins and in the heart was found quite fluid, and very dark, almost black. There were unusually many bleeding points in sections of the brain and medulla oblongata, and the pia mater was congested. The heart, lungs, and other viscera were healthy. The body was in good condition as regards muscle and fat, and the rigor mortis was well marked."

Death from Chlorodyne.—On Saturday last considerable excitement was created in the town of Harleston by the report that a woman named Elizabeth

Saunders had been poisoned by chlorodyne. The deceased has for several years been in the employ of Mr. Thomas S. Stanton, of Mendham, who supplies this town with milk. While on her round with her milk on Saturday morning, she called on Mrs. Arnold, and as she complained to her that she was suffering from diarrhœa, Mrs. Arnold gave her a dose of chlorodyne, which had as she thought been prepared for her son, but which it turned out was undiluted. On discovering her mistake, Mrs. Arnold sent for Saunders, and gave her some antimony as an antidote. She was left, however, to go on her way, and not returning home at her usual time, inquiry was made for her, and she was found, between 10 and 11 o'clock, in a water-closet in the town, in a state of unconsciousness. Medical attendance was called in, and every attention was shown her, but she never rallied, and only lingered till 10 o'clock at night. An inquest was held on Monday morning, when a verdict of "Accidental death from an overdose of chlorodyne" was returned.—*London News.*

M. Demarquay has eight times tied the lingual artery in the living subject. He recommends it as a preliminary to the removal of tumors occupying the deep parts of the tongue, to avoid hæmorrhage. He has three times tied both linguals to procure atrophy of cancerous tumors of the tongue and to prolong the life of the patients; and always with advantage, and without mischief. The best proceeding is that of Blandin Bédard, who, according to M. Demarquay, first proposed the ligature of the lingual artery; but Harvey foresaw the surgical use of ligaturing arteries in the treatment of tumors. M. Mirault (d'Angiers) first tied the lingual in France; then Flaubert, Roux, and Maisonneuve; Liston and Moore in England; and finally M. Demarquay, the author of the memoir here analysed.

The Cause of Scurvy.—The general view that scurvy is produced by an excess of common salt in the blood,

occasioned by a diet of salted meat exclusively, has received some confirmation, says the London Review, in the experiments lately conducted by M. Prussak of St. Petersburg. M. Prussak placed the web of a frog's foot under the microscope, so as to observe the passage of the blood through the smallest blood-vessels. He then injected a solution of salt beneath the frog's skin, and watched the effect on the vessels. He perceived that the blood-corpuscles distended the vessels, and gave rise to the patches of dark-colored extravasations, extremely like the peculiar livid blotches seen on the skin of scorbutic patients. Experiments on dogs and other animals appear to give the same results. It now remains to be shown why common salt should possess this peculiar action on the blood vessels. Most probably the explanation will be found in the excessive osmosis which occurs owing to the increased density of the blood.

Continuation of the Heart's Action after Death.—A fresh interest has been recently given to this subject by a paper on the "Physiology of the Circulatory Functions," read before the International Medical Congress in Paris, by M. Marcelline Duval, Director of the Brest Naval Medical School. The paper contains the results of the experiments performed upon guillotined criminals in 1850, 1851, and 1866. They fully confirm, what hardly needed confirmation, the fact that the heart may beat after life is extinct, and that its contraction therefore is not of itself evidence that resuscitation is possible. The following is the translation of an extract from M. Duval's report, giving the appearances noticed:

"*Carotid Arteries.*—The first two bodies were brought to the dissecting-room; one five and the other six minutes after execution. In both the severed extremities of the common carotids rose at regular intervals and extended themselves beyond the level of the section of the neck and then retracted again, a movement which

might be compared to that of a good-sized artery upon which a ligature has been placed immediately after amputation. At each impulsion a small quantity of frothy, crimson blood escaped from the open extremities of the carotids. Blood flowed also from the internal jugular veins, equally frothy in character, but darker in color. The arterial shocks were feeble, but perfectly appreciable to the sight.

"*Heart.*—About seven minutes after death the chest was rapidly opened, and the beating of the heart could be perceived through the pericardium, which contained about an ounce and a third of a very clear, slightly yellowish liquid. The heart, left uncovered by the incision of the pericardium, was studied as it lay, before its action or position had been modified by contact or otherwise.

"*Movements of right and left Auricles.*—The left auricle is in repose upon the aorta, which it embraces. After a very short, but appreciable, time of rest, this appendix rises suddenly and leaves the aorta exposed, then falls rapidly and resumes its previous position. There is expansion of the auricle, as though it were distended by liquid, and during the expansion it becomes longer, and the fringes upon its edge assume a denticulated appearance until the auricle falls to its first position, when they approach one another again. This double movement, perfectly rhythmical, reproduced itself forty-eight times during the first minute, but its frequency rapidly grew less, and in the seventh minute it occurred only seven times. It should be also mentioned that, in the first subject, the right auricle pulsated strongly and regularly at the rate of forty-three or four times a minute, at first, and that the pulsations persisted an hour and a quarter, and were not interrupted by the removal of the stomach, the intestines, the diaphragm, and even of the lungs. The contraction of the ventricles was distinctly perceived, all their diameters becoming less and their surfaces gathering themselves into folds and wrinkles. Both con-

tracted at the same time, and in perfect accord, the contraction running from the base to the point of the heart."—*Boston Medical and Surgical Journal.*

The New Sydenham Society.—The object of this society, as is well known, is to furnish medical works of value, and especially those which might not otherwise be obtainable, at the cost price of their publication. The same principle is maintained by the local secretaries; viz., to supply the books at the subscription price of "one guinea," in London, with the addition of the actual cost of importation. A year's subscription, at the present rate of exchange, will, in all probability, not exceed ten dollars in currency, (subject, however, to the fluctuations in gold and any unforeseen contingencies;) and this is much less than the price of importation through booksellers. Any surplus at the end of the year will be devoted to a reduction of the expenses of the ensuing year; and if any deficiency should occur, each subscriber will, of course, consider himself bound in honor to supply his share. No books are sent from the London office except upon prepaid order; early subscribers will therefore have the preference. Dr. F. J. Bumstead, No. 162 West 23d Street, the Local Secretary, will receive subscriptions for the present or any previous year, at the rate of ten dollars per annum.

Died, in Paris, September 10th, from cerebral hemorrhage, aged 74, Dr. P. Rayer, one of the most eminent of the Paris Faculty. He was the founder and permanent President of the Biological Society, and has occupied many elevated positions, such as President of the Academy, Dean of the Faculty of Medicine, President of the General Medical Association, Physician to La Charité, Consulting Physician to the Emperor, &c. &c. He earned these elevated positions by incessant labor and indomitable industry. M. Rayer will long be gratefully remembered for his prompt appreciа-

tion of and the encouragement he afforded to youthful talent. It was under his tuition that were developed Claude Bernard, Ch. Robin, Tardieu, Gubler, Vulpain, Charcot, etc.

Death of M. Flourens.—This eminent physiologist has just died, at the age of seventy-three. For many years he was at the head of the French experimentalists, and occupied the important office of Permanent Secretary to the Academy of Sciences. He was also a member of the Académie Française, a learned body restricted to forty members, all of whom have more or less distinguished themselves in literature and science. Flourens maintained that by proper management life in most cases could be prolonged to one hundred years; and yet, for some years past, he has been in feeble health and unable to continue his lectures at the governmental establishment, the Musée d'Histoire Naturelle.

The following paragraph was inadvertently omitted in connection with the article on Spontaneous Generation in the January number of the Journal, p. 380.

In connection with the above, it should be stated that, on the meeting of the French Academy on the 7th of October last, M. Donné, who has long and strenuously advocated the doctrine of spontaneous generation, recanted his views. He was led to this result by his last experiment in support of the doctrine of heterogeny. This experiment, like the many others he has from time to time described to the Academy, consisted in placing an egg under a receiver, then allowing water to enter the pores and replace the air, and finally in shaking together the yelk and the white, and allowing them to stand by for some time. Eggs exposed to these conditions for six months showed no traces of living beings even of the most "microscopic" dimensions.

ERRATA.

In Dr. Lidell's paper, last number of the Journal, page 403, line 25, for *tinged* read "turgid."

Page 407, line 3, for *nervous* read "venous."

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The Medical Times and Gazette.
The Medical Press and Circular.
The British Medical Journal.
The British and Foreign Medico-Chirurgical Review.
The Medical Mirror.
The Edinburgh Medical Journal.
The Glasgow Medical Journal.
The Dublin Quarterly.
The Journal of Cutaneous Medicine.
The Journal of Anatomy and Physiology.
The Journal of Mental Science.
The Anthropological Review.
The American Homœopathist.
The American Journal of Medical Science.
The American Journal of Dental Science.
The American Journal of Homœopathic Materia Medica.
The American Journal of Pharmacy.
The American Literary Gazette and Publishers' Circular.
The American Eclectic Medical Review.
The American Naturalist.
The Atlanta Medical and Surgical Journal.
The Boston Medical and Surgical Journal.
The Boston Journal of Chemistry.
The Buffalo Medical and Surgical Journal.
The Canada Medical Journal.
The Chemical News, and Journal of Physical Sciences.
The Chicago Medical Examiner.
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The Cincinnati Medical Repertory.
The Cincinnati Lancet and Observer.
The Dental Cosmos.
The Detroit Review of Medicine and Pharmacy.
The Druggist and Chemical Gazette.
The Galveston Medical Journal.
The Humboldt Medical Archives.
The Herald of Health.
The Hahnemannian Medical Monthly.
The Journal of Materia Medica.
The Leavenworth Medical Herald.
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The Medical Record.
The Medical Gazette.
The Nashville Journal of Medicine and Surgery.
The New Orleans Journal of Medicine.
The Philadelphia Medical and Surgical Reporter.
The Pacific Medical and Surgical Journal.
The Quarterly Journal of Psychological Medicine.
The Richmond Medical Journal.
The St. Louis Medical Reporter.
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The United States Medical and Surgical Journal.
The Western Journal of Medicine.
The Cultivator and Country Gentleman.
The Nation.
The Round Table.
The Scientific American.
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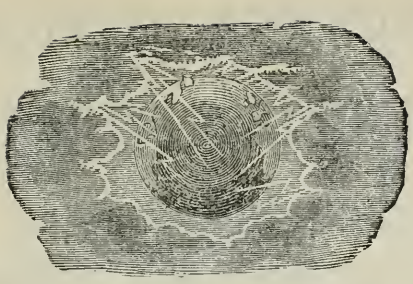

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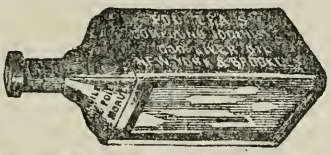

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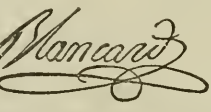

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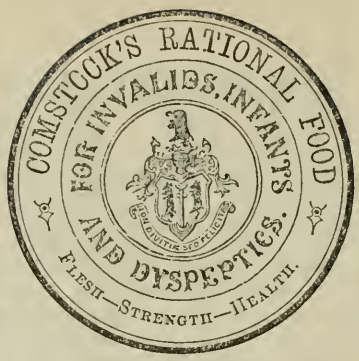

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It is with pleasure that I can recommend your Persian Healing Soap for baldness; it is bringing my hair in beautifully. I consider it the best Hair Renovator in use, and would recommend it to every one that is troubled with baldness, or falling off of the hair. M. M. Combs, 218 Atlantic Street, Brooklyn, N. Y.

According to promise, I inform you of the success that has attended your Persian Medicated Soap. It has cured Pimples on the Face and Neck, Itch, Salt Rheum, Sunburn, Chapped Hands and indolent Ulcers; and knowing the medical ingredients, will say, it is the best medicated soap in the market. Yours respectfully, William Wynn, Chemist and Druggist, 150 Fulton Avenue, Brooklyn, N. Y.

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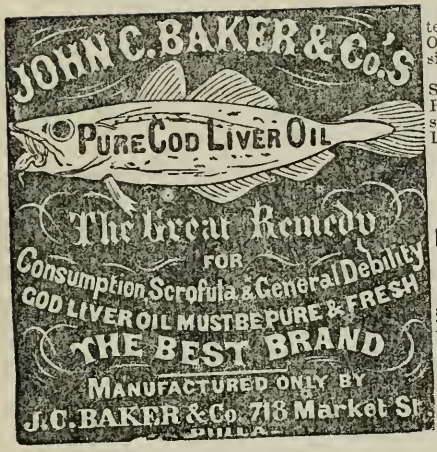
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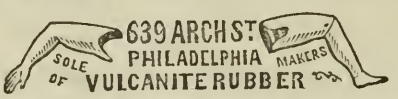

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Each teaspoonful of the Elixir contains one grain of the Salt of Phosphorus and Iron, and each pint contains one ounce of Royal Calisaya Bark.

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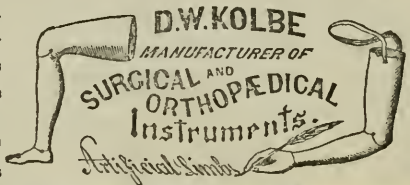

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FOR THE RADICAL CURE OF

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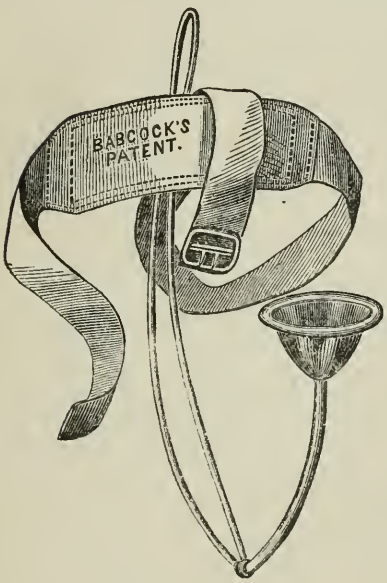

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The instrument consists of a silver cup made to nicely fit the Cervix Uteri, attached to a hollow curved silver stem, which holds the Uterus in its natural place, and also allows the exudations of the uterus to pass freely out, without irritating the vagina. This curved stem is fitted closely to the external handle, which divides in a curve over the os pubis, coming up to the base, where it is firmly held by a screw; the base being a brass plate covered with enamelled leather, and fastened around the body by a silk elastic belt, which may be buckled loosely above the brim of the pelvis.

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Very truly yours,

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	U. S. P.		U. S. P.
Aloes and Myrrh	4 grains.	Cynoglose	1 grain.
Compound Cathartic	3 "	Quevenne's Iron, reduced by Hydrogen.	1 "
" "	1½ "	Proto-Iodide of Iron	1 "
Aloetic	4 "	Lactate of Iron	1 "
Aloes and Assafœtida	4 "	Sulphate of Quinine	1 and 2 "
Dinner, Lady Webster's	3 "	Valerianate of Quinine	1 "
Comp. Calomel, Plummer's	3 "	" " Zinc	1 "
Blue Pills	3 "	" " Iron	1 "
Opium Pills	1 "	Citrate of Iron and Quinine	½ "
Calomel Pills	2 "	" " Iron	½ "
Opium et acet. Plumb, each	1 "	Willow Charcoal	2 "
Extract of Rathany	2 "	Discordium	2 "
Compound Rhubarb	3 "	Anderson's Anti-Bilious & Purgative	2 "
Compound Colocynth	3 "	Extract of Gentian	2 "
Compound Squills	4 "	Iodide of Potassium	2 "
Dover Powders	2 "	Calcined Magnesia	2 "
Carbonate Iron, Vallet's Formula		Rhubarb	2 "
Carbonate of Manganese and Iron		Ergot, powder covered with sugar as soon as pulverized	2 "
Kermes	1-5 "	Phellandria Seed	2 "
Santonine	½ "	Washed Sulphur	2 "
Bi-carbonate of Soda	4 "	Sub-Nitrate of Bismuth	2 "
Magnesia and Rhubarb, each	1 "	Tartrate of Potassa and Iron	2 "
Meglin	1 "		

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Of 1-50 *of a grain each.*

Aconitine,
Arsenious Acid,
Atropine,
Digitaline,
Morphine,
Strychnine,
Valerianate of Atropine,
Veratrine.

Of 1-5 *of a grain each.*

Tartar Emetic,
Codeine,
Conicine,
Extract of Belladonna,
Extract of Hyosciamus,
" " Ipecac,
" " Opium,
Proto-Iodide of Mercury.

Lupuline	½ grain.	Extract Rad. Aconite	¼ grain.
Extract Nux Vomica	⅛ "	Emetine	¼ "
Veratrine	1-24 "	Iodide of Mercury	¼ "
Sulphate of Morphine	⅛ "	Valerianate Morphine	⅓ "
Corrosive Sublimate	1-12 "	Acetate Morphine	⅓ "
Nitrate of Silver	¼ "	Digitaline	1-24 "
Extract of Hyosciamus	½ "	Strychnine	1-12 "

Colchicum (each granule equal to two drops of tincture).

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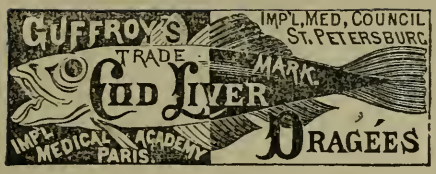

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